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ENVIRONMENTAL ASSESSMENT BOARD

VOLUME: 390

DATE: Thursday, June 25, 1992

BEFORE:

A. KOVEN Chairman

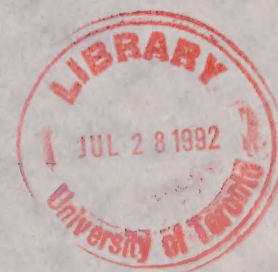
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Ontario

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HEARING ON THE PROPOSAL BY THE MINISTRY OF NATURAL
RESOURCES FOR A CLASS ENVIRONMENTAL ASSESSMENT FOR
TIMBER MANAGEMENT ON CROWN LANDS IN ONTARIO

IN THE MATTER of the Environmental
Assessment Act, R.S.O. 1980, c.140;

- and -

IN THE MATTER of the Class Environmental
Assessment for Timber Management on Crown
Lands in Ontario;

- and -

IN THE MATTER of a Notice by The Honourable
Jim Bradley, Minister of the Environment,
requiring the Environmental Assessment
Board to hold a hearing with respect to a
Class Environmental Assessment (No.
NR-AA-30) of an undertaking by the Ministry
of Natural Resources for the activity of
Timber Management on Crown Lands in
Ontario.

Hearing held at the Civic Square, Council
Chambers, Sudbury, Ontario on Thursday,
June 25, 1992, commencing at 8:33 a.m.

VOLUME 390

BEFORE:

MRS. ANNE KOVEN
MR. ELIE MARTEL

Chairman
Member



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I N D E X O F P R O C E E D I N G S

<u>Witness:</u>	<u>Page No.</u>
<u>J. OSBORN,</u> <u>KEN ABRAHAM,</u> <u>FRANK KENNEDY,</u> <u>PETER W.C. UHLIG,</u> <u>WILLIAM R. WATT; Resumed.</u>	67147
Direct Examination by Mr. Freidin (Cont'd)	67149
Cross-Examination by Mr. Lindgren	67214
Cross-Examination by Ms. Gillespie	67257
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I N D E X O F E X H I B I T S

<u>Exhibit No.</u>	<u>Description</u>	<u>Page No.</u>
2287	Nine-page overhead entitled: Scientific Research and Technical Development, Geographic Information Systems.	67170
2288	Six-page overhead entitled: Scientific Research and Technical Development: Training and Professional Development and Reporting Requirements.	67199
2289	Page 29 of the MNR estimates briefing book for the year 1992/'93.	67255

1 ---Upon commencing at 8:33 a.m.

2 DR. JOHN OSBORN,
3 FRANK KENNEDY,
4 DR. KEN ABRAHAM,
5 PETER UHLIG,
6 ROBERT WATT; Resumed.

7 MADAM CHAIR: Good morning, Mr. Freidin;
8 good morning, gentlemen.

9 Mr. Watt?

10 MR. WATT: Good morning.

11 Madam Chair, Mr. Martel, I've taken the
12 liberty of creating an additional overhead for the
13 purpose of briefly encapsulating what we went over
14 yesterday and just to bring everybody back on line with
15 the story we've been telling so far.

16 If you recall, I first went through a
17 brief description of what habitat supply modelling was.
18 It showed a systems diagram which showed what the
19 various components were. We then talked about the idea
20 of spatial versus nonspatial models and discussed a few
21 of the pros and cons of each; and then went on to talk
22 about some of the barriers to immediate implementation
23 which included inventory growth and yield information,
24 the computer models themselves and what we had to do to
25 adapt those, and the need to test and validate habitat
relationships before importing them to the province.

We then talked more specifically about

1 the portability and testing of the habitat
2 relationships, including the time frames and the costs
3 and what factors controlled those. We discussed the
4 levels of model testing including assumptions,
5 variables, components and final model outputs and we
6 tried to put that into a framework whereby we could see
7 where local effects monitoring fit in, where
8 ecoregional level studies fit in and perhaps where
9 provincial level effectiveness monitoring programs fit
10 in.

11 We then talked briefly about active
12 versus passive adaptive management and the need to
13 probe ecosystem responses and the limitations that that
14 imposes on the use of local effects monitoring in terms
15 of being able to in all operational management areas
16 actually probe the system and the risks that would be
17 involved in doing that; and then briefly mentioned that
18 we're not developing habitat supply models in Ontario
19 in isolation of other jurisdictions, and I mentioned a
20 few sources of information and technology for the U.S.
21 Forest Service, the Fish and Wildlife Service in New
22 Brunswick and the Petawawa National Forest Institute.

23 So what I'd like to do next is basically
24 either -- well, first of all, I'd like to ask if
25 perhaps I should just proceed from here or if the Board

1 has any questions they'd like to ask now?

2 MADAM CHAIR: Please go ahead, Mr. Watt.

3 MR. WATT: Thank you.

4 DIRECT EXAMINATION BY MR. FREIDIN (Cont'd):

5 Q. Mr. Watt, I have just one question on
6 one of your earlier slides before you do go on to your
7 next one, and that's the slide which was the graph
8 regarding active versus pasive adaptive. I think it
9 was page 8 in the series of overheads. Perhaps we can
10 put that one up. That's it right there, you just
11 passed it.

12 ---Overhead changed on screen.

13 MR. FREIDIN: Q. Just looking at that
14 particular graph, Mr. Watt, if one wanted to learn or
15 increase your knowledge regarding the cause effect
16 relationships, does it make any difference where you
17 are on that curve?

18 MR. WATT: A. Yes, it does. If you're
19 operating in the part of the curve that's level and
20 flat towards the right hand side, the one that's
21 labeled "passive adaptive management", the system
22 itself isn't responding. You're getting a relatively
23 random amount of noise in the data that you're
24 collecting, but the system itself is not -- the
25 ecosystem itself that you're trying to study is not

1 responding. And so you really do have to be down on
2 that slope to be able to determine changes.

3 If you're not on that slope, then, in
4 fact, you can't probe the model, you can't set up an
5 experiment. Basically experimental management designed
6 to cause and measure change. And it's through that
7 cause and measuring of change that you learn about,
8 about cause and effect.

9 Q. Thank you.

10 A. The Ontario Ministry of Natural
11 Resources has been active in the development of habitat
12 supply modelling in an experimental fashion since
13 approximately 1989. The projects currently underway
14 represent prototype development, they cover all ranges
15 of sophistication representing simple presence/absence
16 models to models which predict abundance and include
17 spatial and nonspatial models.

18 The, the projects listed on the overhead
19 are described in more detail on pages 30 to 40 in the
20 witness statement No. 3, and so unless there are
21 specific questions, I'd like to simply point out a few
22 new developments or important key points on just one or
23 two of those.

24 The first project was that the marten
25 habitat supply model with Lakehead University in the

1 Northern Forest Development Group as the co-operators
2 is in its second year. We have developed a prototype
3 model which has been reviewed by myself, by habitat
4 supply modelling specialists from New Brunswick and by
5 people in Petawawa National Forest Institute and is now
6 undergoing some reprogramming. We also plan to field
7 test the habitat relationships that are embedded in
8 this model over the next three years.

9 I'd also like to point out on the bottom
10 part of the graph under habitat relationships work that
11 under songbird associations, three years of
12 co-operative work with the Canadian Wildlife Service,
13 notably Anne Welsh, have been completed at this point
14 surveying stands of known FEC types for songbird
15 habitat use.

16 This has been closely tied in with the
17 other wildlife initiative under the provincial
18 effectiveness effect -- effectiveness monitoring
19 programs that have been part of the previous evidence.

20 Also small mammal sampling is underway as
21 well; and we plan to do some preliminary work on
22 amphibians and reptiles all in the same manner, looking
23 at which species are using which FEC types.

24 The Board has asked us whether or not
25 habitat supply modelling and featured species

1 approaches are compatible with landscape management;
2 I'd like to address that question briefly.

3 If we were to take a look at a systems
4 diagram similar to the one previously shown at the
5 beginning of the talk on habitat supply modelling, it
6 will become readily apparent that the two are extremely
7 complementary.

8 In the case of landscape modelling we
9 have apparent inventory which again we project through
10 an inventory projection model as a result of or under
11 the constraints of succession rules, rules about
12 treatment response and management actions and project a
13 future inventory. We then interpret that future
14 inventory for landscape diversity type measures, things
15 like edge area indices, diversity indices, ecological
16 similarity indices and a number of other parameters
17 including fragmentation.

18 If I could have the next overhead.
19 ---Overhead changed on screen.

20 MR. WATT: Again, just to refresh you,
21 this was the original systems diagram for the habitat
22 supply modelling and the point to notice is that the
23 only thing that is different is the two boxes on the
24 bottom where, in fact, we have interpretations for
25 timber and more specifically for wildlife habitat

1 replacing the landscape interpretations.

2 So habitat supply modelling is in every
3 sense landscape modelling, but looking specifically at
4 wildlife habitat. We might look at different scales
5 for different purposes, we would look at different
6 sizes of areas for different wildlife species and we
7 may look at different sizes or of management areas or
8 ecoregions or ecodistricts for the purpose of
9 characterizing and interpreting things about landscape
10 pattern.

11 And I say that predominantly because when
12 we're starting to look at landscape patterns
13 specifically, we have to look at things like the
14 patterns imposed on the landscape from fire, insect
15 epidemics, et cetera, which may differ in their -- in
16 the extent to which you can capture those in comparison
17 to the size of area that you can capture information
18 about wildlife response.

19 I'd like to also add my own personal
20 opinion here that forecasting future landscapes without
21 assessing their value for either wildlife or for
22 recreation or for timber I feel is of limited benefit.
23 If all we know is that the landscape is going to look
24 like this and it has these various indices, that unless
25 we know know what that means for some of the things

1 we're trying to produce for a society, I'm not sure how
2 far we've moved. So I think if we're going to do
3 landscape modelling and landscape management, we still
4 have to have a process in place to look at interpreting
5 those future landscapes for the products in values that
6 society is looking for.

7 So, finally, in conclusion, I have a few
8 main messages that I'd like to leave with the Board.
9 The first is that the Ministry of Natural Resources is
10 still in the early development stages of what was
11 really a relatively new set of technologies.

12 We expect to be able to apply prototype
13 versions of habitat supply modelling on an experimental
14 basis within the next several years. We would intend
15 to use the results of those experimental applications
16 to further refine our software and our information
17 base, as well as to gain a little more understanding
18 about how we would use this technology in the process
19 of management planning. There are an awful lot of
20 administrative and process oriented considerations that
21 we really haven't been able to look at yet, and we
22 can't look at those until we've actually been able to
23 apply experimentally a habitat supply model to see how
24 we would start making the, the trade-offs and -- and
25 within a planning context.

1 Operational usage of habitat supply
2 modelling would then be phased in as we learned more
3 about habitat relationships and we tested them and as
4 area teams and managers acquired GIS and spatial
5 inventory information.

6 A high degree of training in habitat
7 supply modelling and the associated tools would be
8 requiured to make full use of these capabilities.

9 We feel that our current approach to the
10 development and implementation of habitat supply
11 modelling is not significantly different than that of
12 other jurisdictions. We're following the same kind of
13 approaches that were applied in New Brunswick and
14 British Columbia, in Alberta, in the United States. In
15 the interim, the OMNR, we continued to guide wildlife
16 habitat management with the existing guidelines and
17 implementation manuals which currently capture our
18 state-of-the-art knowledge of wildlife habitat
19 requirements.

20 We feel we have more time than other
21 jurisdictions had. In terms of New Brunswick, they
22 were aware of relatively immediate wood supply
23 shortfalls and therefore habitat supply shortfalls
24 across much of the province and were forced into acting
25 quickly.

1 The same can be said for the old growth
2 situation in the British Columbia and the Pacific
3 Northwest.

4 We have no evidence of widespread habitat
5 supply shortfalls. We feel we have some time to do the
6 required upfront work in terms of testing habitat
7 relationships and providing the field managers with
8 credible tools that they can have confidence in.

9 Thank you very much, that concludes my
10 presentation.

11 MR. FREIDIN: Q. Mr. Watt, there are a
12 couple of questions I'd like to ask you about, which
13 aren't specifically related to HSA but are in an area
14 that you do have expertise, and that is some of the
15 evidence which was given by Dr. Quinney in the
16 coalition's Panel No. 6 regarding the coalition's
17 approach to maintaining or conserving biodiversity.

18 It was in that context that Exhibit 2095
19 was, in fact, filed. That is a paper prepared by
20 Phoenix and Racey entitled: Using Forest Ecosystem
21 Classification to Facilitate Habitat Inventory.

22 Are you familiar with that paper?

23 MR. WATT: A. Yes, I am.

24 Q. And could you just advise the Board
25 how it is that you are familiar with that paper?

1 A. The projects in the northern region
2 that is discussed in the paper was a project that
3 myself, David Archibald, who works in the same unit as
4 myself, Dean Phoenix and Chris Davies, a regional
5 wildlife biologist in Cochrane, put together. We -- I
6 was involved from the initial conceptualization of the
7 project through to the final reporting by the
8 consultant.

9 So in terms of I'm familiar with the
10 design and the implementation of the project as a
11 whole.

12 Q. And did you have an opportunity to
13 review the evidence of the coalition regarding how they
14 suggested the work described in that paper might be
15 used as part of their approach to biodiversity?

16 A. I've gone through the transcripts as
17 well as the terms and conditions for OFAH as well as
18 their evidence package itself.

19 Q. Now, Dr. Quinney indicated that a
20 precondition to applying their 10 per cent rule was the
21 ability to prepare a FEC map, and it's for that reason
22 I want to review this particular article with you.

23 Dr. Quinney was asked but he was unable
24 to describe what an operational group was as discussed
25 in this paper; I'm wondering whether you could do that

1 for me.

2 A. Certainly. If you could put up the
3 overhead that was used by Mr. Uhlig. This would be an
4 overhead that was No. 15 in Mr. Uhlig's statement
5 yesterday afternoon.

6 ---Overhead changed on screen.

7 MR. WATT: This is a fact sheet for an
8 operational group, part of the claybelt FEC that is
9 prepared by Jones, et al.

10 On the right-hand side there is a listing
11 or a description which covers the attributes of a
12 particular operational group, OG7, and about three
13 lines down it lists a number of vegetation types which
14 occur in that operational group.

15 In this particular case vegetation type
16 19 is found in operational group 7, 40 per cent of the
17 time - that's what the little 4 superscript refers to;
18 vegetation type 18 is found in operational group 7, 30
19 per cent of the time; vegetation type 21, 2 per cent of
20 the time and there is also some vegetative type 16 and
21 22.

22 If we were to go down to the bottom
23 underneath soil, it also lists two predominant soil
24 types which are found in operational group 7. Soil
25 type 8 which is there 60 per cent of the time; soil

1 type 10 which is there 30 per cent of the time and the
2 remaining 10 per cent is a variety of other soil types
3 that might be in there.

4 So what this should be telling us or, or
5 what I understand from this is basically that
6 operational groups are combinations of ecoelements
7 which were grouped together for silvicultural treatment
8 response purposes. We felt that by -- or the authors
9 of the claybelt FEC felt that by grouping these
10 particular veg types and soil types together into an
11 operational group reflected something about forest
12 operations and how those ecosystems responded to
13 treatment.

14 In the claybelt FEC much of that was done
15 for the purposes of looking at traffic ability and
16 constraints to harvesting caused by, up in the
17 claybelt, peat lands and, and organic soils.

18 MR. FREIDIN: Q. And am I correct that
19 that work that was done by Phoenix and Racey resulted
20 in the mapping of complexes of operational groups?

21 MR. WATT: A. Our original attempt in
22 the project, which in hindsight was rather naive, was
23 the hope that we would actually be able to map FEC
24 through the process.

25 We learned a lot about mapping FEC by

1 doing this and that finding out that, in fact, we
2 couldn't, and we mapped complexes of OG's.

3 We had a problem in that our soil
4 information was at a scale of 1 to 100,000 with very
5 large soil polygons that had rather general
6 descriptions. We had FRI polygons that were at 1 to
7 12,500 and 1 to 10,000 -- or, excuse me, 1 to 20,000
8 roughly and we were trying to match these one on top of
9 the other, and the boundaries never line up.

10 The other thing is that we were unsure of
11 the reliability of the soil maps themselves and of the
12 reliability at, at a polygon level of the FRI
13 descriptors. So what this meant was there was an awful
14 lot of noise in this data set that we -- these two data
15 sets that we combined. And the best we could do was to
16 make predictions about which groups of OGs would fall
17 into these soil FRI overlays.

18 So in -- a complex of operational groups
19 would often have four or five OGs assigned to a single
20 polygon, and, again, they would have superscripts on
21 top of them that would say, well, the proportion here
22 is that, is that 70 per cent of the time or 60 per cent
23 of the time it's one operational group, and 30 per cent
24 of the time or 20 per cent of the time it's another,
25 and there would be a list like that. And there was

1 often four or five very diverging operational groups.
2 You would have some lowland spruce assigned to the
3 particular polygon that was mapped, but you might also
4 have some upland mixedwoods, and that's, again, a
5 reflection of the fact of the noise that was involved
6 in this, in this database.

7 The result was that what we got out was a
8 map that fortunately was very good for looking at moose
9 habitat capability. In other words, we were able to
10 say that, well, these areas are good for moose or bad
11 for moose or, or moderate for moose because most of the
12 operational groups that appearing in these complexes
13 were rated independently roughly the same for a
14 particular requirement for moose. So, for example, for
15 late winter cover it turned out that most of the
16 operational groups that were in one of these complexes
17 were rated the same; they were either rated all medium
18 or they were rated all high.

19 So we were fortunate from that respect,
20 but the resulting maps that came out of that really
21 aren't FEC maps, they're moose capability maps. And
22 that's the best they can be.

23 Q. How much veg types would you have in
24 a complex that you were able to map? Can you
25 approximate it?

1 A. Let me just get this, just a minute
2 of thought here.

3 On an operational group 7 alone there are
4 as many as five vegetation types that could be
5 represented and we'd often have roughly five
6 operational groups within a complex, however, these
7 vegetation types overlap between complexes so we might
8 be anywhere in the range of ten to fifteen vegetation
9 types might be potentially represented in one of those
10 complexes.

11 Q. Mr. Watt, Dr. Quinney and the
12 coalition were taking the position that these FRI maps
13 or these derived FEC maps such as described in this
14 document could be used as part of their proposal to
15 manage for biodiversity which was to retain -- which
16 concluded as part of that to maintain 10 per cent of
17 every vegetative type in the oldest seral stage.

18 Do you have an opinion as to whether, in
19 fact, this type of mapping would be of any assistance
20 in achieving that objective?

21 A. The mapping that was done in this
22 particular project would not need those requirements.
23 We would not be able to identify how much of any
24 particular vegetation type was on any individual map,
25 nor would you be able to determine where it was.

1 So, in fact, all you know is that there
2 are these complexes of OGs and we can't on those maps
3 even readily determine how much of a particular OG
4 there is and where it might reside on the map, which is
5 still one scale above vegetation types.

6 Q. Thank you. And one last question,
7 Mr. Watt. During panel No. 7 of the coalition's case,
8 Dr. Page from British Columbia testified, and during a
9 discussion during the length of time that it takes to
10 develop habitat supply models perhaps left the
11 suggestion that it was a more difficult task in British
12 Columbia because of the complex forest there, and he
13 made a comment suggesting that it might not be as
14 difficult in Ontario because of what he referred to as,
15 and I quote, the simplicity of the boreal forest, end
16 of quote.

17 In the context of developing habitat
18 supply models, could you comment on that evidence? The
19 date reference for that for the record is the
20 discussion which occurs through pages 61851 to 61866 of
21 the transcript.

22 A. In my opinion, complexity of a system
23 is not -- of an ecosystem or a forest zone is not
24 simply measured by how many different tree species or
25 plant species or wildlife species there might be in it.

1 It, it may be that the western coastal rain forest
2 situation that Dr. Page is most familiar with has many
3 different species in it compared to the boreal;
4 however, the boreal is unique in terms of its temporal
5 dynamics and there are many things going on in that
6 respect.

7 We have many soil types, we have many
8 different kinds of stand conditions that are
9 represented across the boreal and we have to deal with
10 this, this rather chaotic patterns of natural
11 disturbance in various sizes and various intensities
12 of terminables that make this system, in my mind,
13 certainly complex enough for me. If, if -- perhaps the
14 way to put it is, is perhaps -- if we, if we were to
15 hypothetically rank the west coast rain forest on a
16 scale of 1 to 100 in terms to complexity as 100 and the
17 boreal forest as simple, we're still at a 98. I mean,
18 we're still talking about a very complex system, so I,
19 I feel that that comment by Dr. Page in the evidence is
20 inappropriate.

21 Q. Thank you.

22 MADAM CHAIR: Mr. Watt, I have two areas
23 I would like to have you respond to. The first has to
24 do with how we tell the public what MNR is doing with
25 habitat supply analysis of modelling.

1 Over the course of the hearing there has
2 obviously been a change in how MNR thinks about habitat
3 supply analysis, and I would like to hear from you when
4 that change was made in your opinion; and now we're
5 left with the situation that seems to be a bit -- well,
6 there are many different ways it seems to me that we
7 can describe where MNR is. We could say, as you seem
8 to be saying in the terms and conditions, MNR is
9 exploring habitat supply analysis; or we could say MNR
10 has already begun to do habitat supply analysis and
11 they're doing it with featured species management; or
12 we could say MNR is experimenting with habitat supply
13 analysis and if it doesn't work, they won't take it any
14 farther.

15 So I guess I would like a very clear
16 statement about how you would describe to someone on
17 the outside who hasn't been through the hearing and
18 heard the evidence and seen the changes that have been
19 going on in the field in this whole area. How would
20 you describe what MNR is doing with habitat supply
21 analysis?

22 MR. WATT: The first part of the question
23 dealing with when the MNR changed its attitude or its
24 opinion about habitat supply modelling, it's a tricky
25 one.

1 It was an evolution. When I was in New
2 Brunswick, I believe it was probably 1988, a group of
3 fifteen people from the Ministry of Natural Resources
4 came to New Brunswick representing habitat biologists,
5 district biologists, foresters, people that were in
6 policy, the planners came down to New Brunswick for,
7 perhaps it was as long as a week, but I don't rightly
8 recollect, but anyway their purpose of going there was
9 to learn what habitat supply modelling was, to take a
10 look at how New Brunswick was implementing it, as well
11 as how New Brunswick was implementing wood supply
12 modelling, volumetric wood supply modelling. And so
13 these two things were tied together.

14 And I think probably that marks the
15 beginning of when the change started to happen in my
16 opinion. So that -- so, again, probably roughly around
17 1988 it started, but it started with fifteen people.
18 And then that grew a little bit, and in 1989 I came to
19 New Brunswick and we were able to make some bigger
20 jumps at least within the northeast region and--

21 MR. FREIDIN: Ontario --

22 MR. WATT: --it's gradually evolved since
23 then. Sorry, what did I say?

24 MR. FREIDIN: Q. So you came to Ontario
25 in 1989; right?

1 MR. WATT: A. Yes.

2 So the change has been, has been a
3 gradual shift. My opinion is that there is, there is
4 wide recognition in the Ministry that habitat supply
5 modelling tools have a role to play, certainly in
6 evaluating potential consequences of management
7 decisions.

8 In terms of where we are, I think we have
9 to recognize right now that the Ministry is in a state
10 of transition in terms of major policy. We, we've
11 recently adopted a new strategic directions towards
12 sustainable development. I believe that habitat supply
13 modelling has a role to play there.

14 At the same time we've had some policy
15 initiatives dealing with a wildlife strategy for
16 Ontario that have been based on public participation in
17 groups from the NGOs, and there are recommendations
18 coming in from a wide variety of people and much of
19 this still has to be sifted through and turned from
20 input into policy and into program development, and
21 this is a lot of work, and habitat supply modelling is
22 one part of that.

23 There are questions related to should we
24 be going with featured species? Should we be going
25 with diversity? Are there mixed strategies? And I'm

1 not sure that all of these things have really been
2 sorted out and a consensus has been built. So I think
3 it's fair to say that we are developing habitat supply
4 modelling tools and information; for that prototype
5 development stage, we're not ready for operational
6 implementation but shortly, within the next two years I
7 believe, we'll have had experimental applications and
8 demonstrations of credible models. And I think that as
9 more people see the usefulness of these models, they
10 will -- there will be again more desire to use them.

11 Does that answer the question or...?

12 MR. MARTEL: It confused the matter more.
13 I think we understand what you're saying, it's what do
14 you make a decision on? Because the order of working
15 issue is for the next umpteen years. And you're in the
16 state of flux at the present time.

17 MR. KENNEDY: Mr. Martel, indeed that's
18 the problem that we are faced with. The challenge that
19 we face is resource managers. There is new information
20 coming forward; we're using new expertise; we're
21 picking up on experience used in other jurisdictions.

22 As Mr. Watt points out, at this point
23 it's not an operational technique that we feel we could
24 put forward quite clearly to you. In our terms and
25 conditions we have stated that it is our intention to

1 continue to investigate that technique and others, and
2 at this time we are unable to commit to a legally
3 binding term and condition that would make that a
4 minimum requirement for timber management planning that
5 each and every mangement unit each and every five-year
6 period costs the province.

7 So at this time we feel that we can only
8 appear before you and say that we are interested, we're
9 aware of what's happening in other jurisdictions, we
10 put Mr. Watt up as our expert to advise you of the
11 status of our work towards that term and condition and
12 that we would continue those efforts and we do hope at
13 sometime we will be able to bring that technique, if it
14 does prove to be successful, into our regular program.

15 MR. WATT: I'd just like to add one more
16 point, and that is that there is no reason to suspect
17 that professional biologists and foresters in Ontario
18 are different from professional biologists and
19 foresters in any other jurisdiction, and that's that
20 when a new technology and new information comes along
21 that allows them to do a better job, they find ways to
22 use that. And so, I mean, it really is as Mr. Kennedy
23 was saying, a matter of -- it's really a matter of
24 timing, when we're going to be ready, and we really
25 just don't know all of those answers yet.

1 MR. FREIDIN: Okay. I guess the next
2 person who we go to is back to Dr. John Osborn to
3 speak about the geographical information systems.

4 I think we should start by marking Dr.
5 Osborn's overheads for this portion of the evidence, it
6 will be Exhibit 2287, I believe. It is a document that
7 is nine pages in length and it is entitled: Scientific
8 Research and Technical Development, Geographic
9 Information Systems.

10 ---EXHIBIT NO. 2287: Nine-page overhead entitled:
11 Scientific Research and Technical
12 Development, Geographic
Information Systems.

13 DR. OSBORN: Madam Chair, Mr. Martel, the
14 Board has shown some interest in GIS and I'm hoping
15 what I will try and say briefly covers some of those
16 concerns, some of the questions you may have about GIS
17 and perhaps aid to some of the understanding as to what
18 GIS is, can be.

19 GIS, the guru's inscrutable solution, or
20 as some people would have us think, but it's not quite
21 the panacea for mankind that some people have so
22 described. Geographic information systems are a
23 specific set of tools in information systems management
24 dealing with data pertaining to geography. So when
25 you're worried about the "where" question - "where am

1 I?", "where is something", what have you, this is
2 perhaps an appropriate set of tools to be used in that
3 context.

4 There's been some inferences that you can
5 walk down the street to the local computer store, buy a
6 package of shrink-wrapped GIS software, bring it back
7 again and plug it into your machine and away you go.
8 And, yes, you can, but you won't go very far.

9 And if we turn to the first slide to try
10 and present a little bit of rationale as to, if you're
11 serious about this technology, what you have to plan,
12 decide, and do to make it useful and realistic.

13 And for the word "planning" I like to
14 translate that into "thinking", and that's a verb that
15 a lot of people tend to skip over straight away and get
16 on to just the decide and do part. But it is rather
17 important because the first item on slide 2 in this
18 exhibit is the identification of what your business
19 needs are.

20 This particular piece of technology is
21 relevant to your business in certain circumstances and
22 if you're in the banking business, GIS is not going to
23 do a great deal for you; and if you're in the hotel
24 reservation business, it won't. In the resource
25 management business it will, but you have to know what

1 part of the business you're in this technology is most
2 appropriate for. So there has to be that
3 identification and understanding of where this is
4 proving to be useful.

5 We come down the list of the items in
6 this exhibit. You've also got to have the right people
7 trained to do the right things. This piece of
8 technology is a little bit more complex than your
9 average run of the mill piece of software. It takes a
10 while to understand and use wisely, it is not a
11 simplistic tool. It requires an investment in the
12 right people.

13 One of the reasons for my cynicism about
14 walking down the street, buying the software and
15 plugging it into your machine is, surprise, surprise,
16 you need an array of data on which to use this
17 technology; that is, machine-readable or
18 computer-readable or digital data, in this case. And
19 because we're dealing with primarily what many people
20 think of as mapping data, that requires maps to end up
21 in a computer, which is not necessarily a small task.

22 And there's been previously discussion
23 and elucidation on the kinds of data and the scope of
24 the date and the time frame within which the Ministry
25 of Natural Resources within the area of the undertaking

1 might have those relevant digital data. It isn't quite
2 here yet.

3 There's also the concern about
4 standardizing those data because, like any computer
5 system, the computer is rather bloody minded about
6 having exactly the right data in the right form and
7 format, it won't take any old thing. And so the data
8 that MNR has or MNR's partners have may have to be, and
9 in some cases has had to be, recompiled to suit this
10 kind of technology.

11 The specification of the software is also
12 an important item. Like any tool, you ascertain what
13 the task is and select the most cost effective tool.
14 So I can get GIS software for free in the public
15 domain; and I can spend half a million, a million
16 dollars. Which piece of software? What set of
17 functions do I need and at what price?

18 The Ministry's maybe six, seven, eight
19 weeks away from releasing what's called the "request
20 for proposal." We're going out to the GIS vendor
21 community - there is potentially some 50-odd systems
22 out there in the marketplace - and MNR has specified
23 what it needs that tool to do. So the vendors
24 understand what it is MNR's looking for in this
25 software, and the vendors will come back and say: For

1 what you want, we can do this for you and it will cost
2 you this much, we'll put it in these locations and
3 provide the support.

4 Given the importance of this technology,
5 and the implications of this technology within MNR, the
6 selection and the appropriate careful selection of that
7 software is no small task.

8 Within MNR the installation specification
9 of the hardware at this point in time is more or less a
10 done deal. MNR already has a hardware standard.
11 Hardware exists primarily within the Ministry, the
12 forest has a specific standard and the selection of
13 software it will be running up against in comparable --
14 .compatible with that happening.

15 Last but by no means least in this
16 particular slide, slide 2, is the idea of need for
17 application design. When I first put this together,
18 the word "application" to me was fully understandable
19 but I'll explain a little bit more what the word
20 application means. Even within the business, if you've
21 got the business need that uses this technology, GIS
22 isn't something that's an end in itself, it's a means
23 to an end; and you need to use it in conjunction with
24 specific applications, and I'll give you very quickly a
25 banking example. If we're looking at managing your

1 personal monies in the bank, within that management of
2 those monies there's two immediate sorts of
3 applications that spring to mind. One, is the deposit,
4 and the second is the withdrawal. And even within the
5 deposit, is it over the counter? Is it through a night
6 safe? They are different applications in the
7 management of a business function.

8 So within the Ministry of Natural
9 Resources in timber management planning we have an
10 allocation business function: Where do I do something?
11 And we have an application that is allocation of
12 timber: Where do I go cut in the next five years; or
13 an application: Where do I do regenerate in the next
14 five years? Similar but somewhat different
15 applications within an overall business view.

16 All of those items have got to be thought
17 through, decided and then implemented.

18 If we go to the next side, just to sort
19 of follow up on what is the Ministry doing about this,
20 as I'll explain in a moment, the Ministry has been in
21 the, quote, GIS game for some time. And in the
22 application development part of the story, we already
23 have from a research and development perspective some
24 applications that have already been proven in the R and
25 D world to be quite useful.

1 The model project - the Board saw a
2 little piece of this story in their visit to Timmins -
3 spoke to two district locations, Timmins and Cambridge,
4 where for a three-year period GIS was assessed as to
5 its usefulness within a district environment, and
6 there's some applications within those two districts
7 that are almost certainly of further usage to be looked
8 at and installed or rolled out, implemented in other
9 districts.

10 In addition, you have heard something of
11 the Plonski project story, which is a decision support
12 system which uses GIS technology. And within that
13 particular project there are some applications, one
14 that's been mentioned actually in the last couple of
15 days, the harvest supply and schedule generator, sorry,
16 which uses GIS that again has potential applications in
17 places other than Kirkland Lake District, which is
18 where the Plonski project is being implemented.

19 So there's already some applications
20 within MNR using this technology that will be looked
21 at, assessed and almost certainly in some shape or form
22 rolled out to other locations.

23 In the implementation of this technology
24 we will all obviously look at, to use a cliché, the
25 greatest bang for the buck. Where are there districts

1 with the greatest common kind of application?

2 The very obviously example in Southern
3 Ontario with the municipalities in the Planning Act is
4 MNR is very involved in development proposals and the
5 assessment of what that development proposal may or may
6 not do to natural resources. And so plan, input and
7 review as an application is of necessity across
8 virtually every Southern Ontario district in MNR. So
9 there's an application which is very common across the
10 south, and you can think of analogies within Northern
11 Ontario.

12 If I turn to the next two slides and I
13 don't intend to go through this list, but there is an
14 array, in the right-hand column, the application
15 projects, an array of projects using this technology
16 that are already ongoing and/or in the planning stage
17 at this point in time within MNR. And there's a range
18 of business activities in the middle column of that
19 list, and a variety of locations where this sort of
20 technology is being used for those.

21 They cover a wide range of the natural
22 resource field.

23 MR. FREIDIN: Q. Dr. Osborn, are you
24 able to comment generally as to where MNR is in
25 relation to the development and implementation of GIS

1 when compared to other provincial agencies, either in
2 Ontario or other jurisdictions in Canada?

3 DR. OSBORN: A. In a use of the
4 technology in -- Ontario in comparison with, let's say,
5 comparable institutions in certainly other provinces of
6 Canada, MNR's usage is probably as good if not better
7 than other in certain area of the use of GIS in other
8 comparable institutions. And I throw the caveat up
9 rather deliberately.

10 Q. What the you mean by "comparable
11 institutions"?

12 A. Institutions that worry about the
13 whole range of natural resources, and by that I mean
14 not just the forest's end or the tree's end, but they
15 cover a whole span of natural resources the way that
16 MNR is mandated. And the reason for the caveat is, for
17 institutions that have a piece or subset of what MNR
18 has, for example, just forests, and let's look at BC
19 Forest Service. BC Forest Service have been using GIS
20 in certain ways within the timber sense certainly for
21 quite some time and to some extent they have advances
22 in GIS beyond where MNR is at this point in time.

23 If I look at instutions at the whole span
24 of concerns of MNR's, then we stand up relatively well.
25 And I'll throw another caveat in, to some extent

1 general perception this general -- I suppose within the
2 use of community general here, say, is that this
3 country, which I'm not sure if you're aware, is in fact
4 the father of GIS - it originated within this country -
5 is in fact ahead of the United States, which is rather
6 an unusual facet this day and age.

7 Q. And, Dr. Osborn, could you comment on
8 whether there is a schedule for the implementation of
9 GIS on an operational basis across the area of the
10 undertaking?

11 A. Yes, given that MNR's been, if you
12 like, in the GIS world for about ten years in an R and
13 D sense, MNR came to as collusion about a year ago that
14 we have projected this technology to death, let's
15 actually implement the operation.

16 And so for the last six months there's
17 been the preparation of, essentially, what was called a
18 "GIS implementation work plan." Literally over the
19 next five years: Where will we do what with this
20 technology? And all the other decisions associated
21 with the first slide I told you about - hardware,
22 software, people, data, et cetera.

23 The next slide speaks perhaps a little
24 more specifically to some pieces of that work plan.
25 The overall intent is the provision of this

1 technological infrastructure. But perhaps more, more
2 relevant is to quickly skim through the objectives.
3 There is an intent, as I've previously described, to
4 decide upon the software that we are to run with, and
5 although MNR has one, two, at least three different
6 kinds of GIS right now within the Ministry, I almost
7 say for government directive reasons MNR does not have
8 the right to merely expand and extend any one of the
9 existing three systems across the board. And far be it
10 for me to try and describe the rules of management
11 board.

12 However, be that as it may, MNR is
13 charged with going out to tender in the marketplace for
14 what piece of software in GIS will become the corporate
15 standard over the next five to maybe ten years.

16 MR. MARTEL: Why wouldn't you want a
17 uniform piece of hardware across the system? Because
18 the problem in government at the present time, as I
19 understand it, is that there's tons of different types
20 of hardware being used in Toronto and none of it
21 compatible or much of it doesn't mesh, and so there
22 seems to be, from my experience, a constant change of
23 technology to try to make it usable in more than one
24 department or one ministry.

25 DR. OSBORN: Mr. Martel, I can speak for

1 the Ministry of Natural Resources; I don't intend to
2 trespass on other ministries.

3 Within the Ministry of Natural Resources
4 since 1982 there has been a corporate standard on
5 hardware and that is digital equipment corporations
6 hardware as a hardware standard; on top of that kind of
7 computer there are two types of microcomputers, either
8 IBM P.C. compatibles and/or MacIntosh's. And within
9 the hardware component of MNR, those are the standards
10 across the board. And so the hardware component within
11 MNR is stable.

12 MR. MARTEL: Okay. Stop there just for a
13 moment. Because let us say you're dealing, MNR wants
14 to deal with, let's say, the Ministry of Agriculture,
15 and you are not using the same type of equipment, then
16 it's not always possible to use the same sort of
17 software to make the necessary comparisons. Or you
18 want to draw something, if you're not, let's say, from
19 a federal department and it's a different type of
20 hardware, again, the problem seems to be that because
21 of this great diversity of equipment being used that
22 it's very difficult as I understand it - and I am
23 anything but an expert in this field, I can assure you.
24 But just having purchased some it, that is very
25 complex.

1 DR. OSBORN: Yes, you're right, sir; no,
2 your not right, sir, in some places.

3 The biggest concern at the moment is the
4 exchangeability of the data, and exchangeability of the
5 software tools. Agreed.

6 The exchangeability of the data has now
7 become an easier story. It's now possible and quite
8 practical to exchange data sets, and that is done
9 between government agencies federal, provincial.

10 The exchange of the software routines is
11 a little more complex but that is not insurmountable.
12 And if I come back to this particular issue at hand,
13 there has been considerable thought as to whether or
14 not the particular RFP for software for GIS that MNR is
15 putting out on the street within the next six to eight
16 few weeks in fact will become the GIS software standard
17 for the provincial government. So in that software
18 standard for this particular technology there is an
19 intent along the lines you have just indicated -- my
20 colleague is prompting me that again I've lapsed into
21 shorthand. RFP - request for proposal.

22 So that is the intent, certainly, with
23 the software end of the story.

24 If I can come back for a moment to the
25 objectives. Going down through the list, we talked

1 about the software; and the third item on that list is
2 perhaps a more direct answer to Mr. Freidin's question
3 as regards there is an intent. In fact, the work plan
4 calls for one or more GIS applications within every
5 ministry site, and that means either district and/or
6 area office in the new organization structure within
7 the five-year period.

8 And, again, so this is not misleading,
9 that does not mean that GIS is operationed to do all
10 things everywhere within five years. It means there'll
11 be one or more applications. It might be aggregates
12 applications --

13 ---Reporter appeals.

14 DR. OSBORN: I'm sorry. -- one or more
15 kinds of applications in respective sites.

16 Again, coming back to an earlier comment,
17 where there is a, a need for the same application in a
18 variety of sites, that's typically the sort of thing
19 that will be spread, because that will make the biggest
20 bang for the bucks.

21 And so on the last piece of the
22 objectvies, coming back to the idea of training, is the
23 intent to have some - I've go to go...? My eyes are
24 going two ways at the same time - 1500 people or so
25 trained in this technology. So there's a tangible --

1 MADAM CHAIR: I would like to sign Mr.
2 Martel up as one of those recruits for training, Dr.
3 Osborn (laughter).

4 MS. BLASTORAH: Can I volunteer Mr.
5 Freidin?

6 MR. MARTEL: The reason she does that, I
7 will not have a computer pulled out on my desk in
8 Toronto. I think that's for computer experts and not
9 for me.

10 MR. FREIDIN: Q. Dr. Osborn, are you
11 able to give any approximation as to the number of
12 applications that the GIS system would have once it's
13 fully operational?

14 DR. OSBORN: A. I can start counting.
15 And let me say this, within forestry, which is where I
16 started with GIS some seven, eight or nine years ago, I
17 had a list of thirty-four potential applications within
18 the forest program alone.

19 The Cambridge and Timmins districts had
20 something in the order of, oh, I think thirty-eight,
21 thirty-nine, forty applications within that model
22 project, and so the number one could envisage of
23 applications within MNR potentially could run at least
24 over a hundred.

25 ---Discussion off the record.

1 MS. BLASTORAH: Perhaps while there's a
2 break in the proceedings, I can just advice the Board
3 for the purpose of their notes that Dr. Osborn has
4 referred a number of times to the "model project."

5 Q. Dr. Osborn, am I correct that's the
6 GIS model district project?

7 DR. OSBORN: A. Correct.

8 MS. BLASTORAH: And the report of that
9 project, Madam Chair, was previously marked as Exhibit
10 2146.

11 MR. FREIDIN: Q. Now, the answer to this
12 question I think perhaps has been partially given, Dr.
13 Osborn, but if someone just sort of sat back and said
14 to you: Does it really have to take this long for the
15 development and for operational implementation across
16 the area of the undertaking? What would your response
17 be?

18 DR. OSBORN: A. The quick response is if
19 you're going to do it at all, do it right. And in that
20 context, given the complexity of the applications where
21 this technology is of importance, my professional
22 reaction is "yes."

23 Let me throw a couple of caveats.
24 There's an ongoing application at Lakehead University
25 using GIS under contract to MNR to do with cultural

1 heritage. Can we use GIS to predict where we might
2 find cultural site -- cultural heritage sites? It is
3 using a very cheap piece of hardware and an almost
4 piece of free software, and for that kind of investment
5 does that kind of job. It is interesting, it is very
6 restricted in what it can do and very restrictive in
7 the area it can cover and the level of detail it can
8 cope with.

9 So for that kind of task for that kind of
10 resolution, you use that kind of tool.

11 Yesterday both Mr. Uhlig and Mr. Watt
12 referred to different kinds of data, different kinds of
13 scales for different kind of tasks. This is another
14 example. If you want to do the kinds of job within MNR
15 to do with resource management where this technology is
16 of use, you make the appropriate investment -- I'll
17 come back to the specifications in that request for
18 proposal are quite voluminous because of the importance
19 and usefulness of this technology. It is, in this case
20 in MNR, a relatively large investment that will take
21 time.

22 Q. And could you indicate what the
23 limiting factors to full operational implementation
24 across the area of the undertaking are?

25 A. We're almost back to referring to the

1 first slide in the sequence. We've got to go through
2 that whole people, hardware, software, data enterprise.

3 At this point in time, out of that list
4 on slide 2 of this exhibit, probably the chief limiting
5 factor for the full operational use of this technology
6 within MNR is the availability of the right data.

7 And, again, that's to think of full
8 operational implementation across all of MNR. It would
9 need the Ontario base maps, and the digital version of
10 those will be complete within the province estimated
11 2004. Some parts of the province have those right now
12 and that's where activity has started and will
13 continue. So it's that particular piece of the story
14 that at this point in time MNR is well aware is a
15 limiting factor.

16 Q. Dr. Osborn --

17 MR. MARTEL: Could I ask a question? Is
18 it possible - and I think we heard "no" in Timmins, but
19 I just want to clarify - is that process, if you had
20 the money, could that be expedited?

21 DR. OSBORN: The simple answer is "yes",
22 Mr. Martel. Money could speed up the digitization
23 process of Ontario base maps and the -- even, actually,
24 the basic survey capture of those data. So, yes,
25 putting money to speed up the Ontario base map program

1 would be a help. And MNR has recognized that, and on
2 several occasions it made efforts to both find and/or
3 reallocate monies to that end.

4 One caveat -- no, no, one, sorry,
5 observation. The Ontario base map is essentially a
6 provincial program, it sits within the Ministry of
7 Natural Resources historically more than anything else,
8 but it is a provincial government program and those
9 data are the provincial data standards since the middle
10 1970s. So it's a government priority rather than MNR
11 priority, per se.

12 The other piece of the story, again,
13 "yes" to your question "would money speed up the
14 process?", also would be relevant to, in a way, the
15 next most obvious data set for most timber applications
16 and that's the forest resource inventory, and that's
17 also recognized that speeding up the forest resource
18 inventory cycle, which as you learnt earlier was some
19 twenty years, would aid the usefulness of this GIS
20 technology.

21 MR. FREIDIN: Q. Even given additional
22 money, does the availability of what you referred to as
23 the "right people" or -- have any relevance?

24 DR. OSBORN: A. Yes. And we're coming
25 back to that whole list of people, data, hardware,

1 software. All of them are constraining factors.
2 Hardware is a done deal; the software is in hand; the
3 data was the most key item on that list.

4 If we dealt with the data end, the next
5 challenge would be the training end.

6 Q. Dr. Osborn, if you had the GIS at the
7 stage where it was operational, do you have enough
8 trained people to implement the system?

9 A. Snap, snap, right today? No. The
10 number of people trained in the use of this technology
11 at the moment within MNR is less than a hundred out of
12 5,000. So that's put that sort of scale on it at the
13 moment.

14 Q. I'd like to just refer you to some
15 specific evidence in relation to GIS given by a couple
16 of witnesses for Forests For Tomorrow, Dr. Osborn, and
17 ask for your comment.

18 I'm referring to evidence given by, I
19 think it's Dr. Middleton and Dr. Suffling, in Volume
20 295. The discussion was regarding the costs of
21 implementing terms and conditions and in that respect
22 there is a discussion regarding the cost of GIS at page
23 52735 of Volume 295. Dr. Middleton said: The Ministry
24 of Natural Resources already has, I understand, the
25 arch info system that is common software for the GIS

1 system in part of it, and this is significant because
2 the softwares costs are often a significant total of
3 the whole. And the pricing for software has the
4 same -- pardon me. He said: I had asked the expert at
5 my university in GIS systems. They had recently got
6 one which is a very powerful system. I can't say
7 whether it's the same level as the MNR's or not and
8 getting approximate price indications from him he said
9 certainly under \$10,000 for that one.

10 Dr. Middleton also continued at page
11 52737 and he says: We are talking about something in
12 the order of a pick-up truck per district for software
13 and hardware of a very sophisticated sort of system, at
14 least as a starting point for talking about it. .

15 Dr. Suffling at the same page states that
16 the most expensive component -- and he's talking about
17 GIS -- is the body that you hire to run the system. It
18 is the cost of the salary for the scientist and the
19 technician or the person who goes walking in and inputs
20 that information. Those are the things that will
21 really kick up most of the budget.

22 Can you comment on that evidence, please?

23 A. Two items. Dr. Middleton's comments.
24 Presupposing the pick-up truck is around 15,000 bucks,
25 that will buy you at this point in time one GIS work

1 station, a package of software. So, yes, you can go
2 and buy hardware and software at that price for one
3 station, one machine; and MNR needs more than one.

4 So the inference that you can go and do
5 it at that price is somewhat misleading. Actually, in
6 all due respect, 15,000 bucks doesn't get you very far,
7 and thinking of some of the other pieces of equipment
8 that go with GIS, 15,000 bucks doesn't do a great deal
9 for you. And it speaks nothing to the other item that
10 leads into Dr. Suffling's evidence, speaking about what
11 are the expensive pieces in GIS implementation story.

12 And if I come now to the -- a slide that
13 was taken from Exhibit 2146 - and that exhibit was this
14 report on the model project, the work done in Cambridge
15 and Timmins, so this is based upon data collected by
16 the Ministry of Natural Resources in this application -
17 the bottom half of the pie, the largest piece, some 50
18 per cent in Cambridge and Timmins project of the costs
19 associated with this were the data collection and
20 compilation.

21 And from listening to people who have
22 been in GIS implementation for some time, that 50 per
23 cent of the total cost is relatively unusually low.
24 The industry standard for implementing GIS has the
25 costs of the data, the compilation of loading,

1 typically running up to 15 per cent.

2 So to infer that, in fact, it is the
3 trained technician or the scientist or the software
4 that in fact is the key component in costs of
5 implementing this isn't borne out by what the industry
6 knows of implementing GIS.

7 Q. Dr. Osborn you made reference to a
8 "work station." What does that mean?

9 A. An expensive computer -- expensive
10 personal computer is the easiest way to answer your
11 question. It is not the -- I'll try to keep jargon out
12 of this. It is not the typical box you put on your
13 desk to do word processing. It is a little bit more
14 elaborate, it is little bit more powerful, and it --
15 I'll leave it that way around.

16 Q. And if you had one of those in one
17 district, would that give you any capability in other
18 districts? Or even at another desk in the same office.

19 A. I'm glad you changed the question
20 because the first answer was quickly "no" unless the
21 guy traipses to and fro from district to district. You
22 need the machine to do -- you need the tools to do the
23 job, and the tool goes as part of the work station, the
24 software and the data. So having one, you can use it;
25 if you don't have it and if it's X feet, yards, miles

1 away, it doesn't do a lot for you.

2 Q. In terms of the cost of GIS during
3 the evidence of the OFAH coalition Panel No. 9, Mr
4 Stewart from Saskatchewan gave some evidence that he
5 was able or Saskatchewan had developed a GIS system
6 which costs \$25 per square kilometre and he indicated
7 some, he indicated some surprise as to the estimated
8 cost in Ontario of \$300 per square kilometre, that
9 number actually showing up in Exhibit 2146.

10 Could you just comment on those two
11 numbers?

12 A. Yeah. Very briefly, within Ontario
13 the -- that quoted dollars, \$300 per square kilometre
14 came out of the Cambridge and Timmins study. We're
15 back into a question of: What do you want to use this
16 technology for? And really the question back of Mr.
17 Uhlig and Mr. Watt earlier, of scale. If you want to
18 analyse things at a provincial level, then maybe GIS
19 running at \$25 per square kilometre is appropriate;
20 but, surprise, surprise, for that investment you do not
21 obtain the resolution or precision of perhaps some of
22 the things of interest to you. And Mr. Uhlig had a
23 list yesterday of, if you're investigating this, the
24 most appropriate scale is...

25 If you use another scale, you will not

1 find the answer or as, actually, Dr. Abraham's
2 suggested with moose, if you used the wrong kind of
3 scale, you will not see a relationship.

4 Within the Timmins and Cambridge
5 districts the emphasis, the idea, was to look at this
6 technology at a field operational level, to use it for
7 in a forestry context dealing with forest stands; and
8 at that level of detail, the sort of investment that
9 Cambridge and Timmins was talking of is appropriate.

10 In fact, if I listen to Mr. Watt's
11 requirements and the story to do with FEC and forest
12 resource inventory, I'm hearing somebody who would like
13 a precision even greater than that to appropriately
14 answer what is deemed to be important.

15 Q. Sticking with this issue about GIS
16 systems in other places and places other than MNR,
17 there was a Board interrogatory, Interrogatory No. 95
18 which asked: Does Ontario Hydro have a superior GIS
19 data system as compared to MNR?

20 The answer to that question, Dr. Osborn,
21 was fairly lengthy and is somewhat technical. I was
22 just wondering whether you could perhaps explain that
23 answer in less technical language.

24 A. The quick answer, in all due respect,
25 when I was first given this interrogatory is I wrote

1 "no, period" and gave it back again and that was the
2 quick answer. However, wiser counsels prevailed.

3 The essence of the answer that's written
4 up really was, it's an impossible comparison. It's
5 like asking: Is it easier to go from Sudbury to
6 Toronto by car or by plane? And, surprise, surprise,
7 the answer is "it depends."

8 What we tried to show in the slide is
9 that between Hydro and MNR there are some distinct
10 differences between those two organizations. And so
11 we've listed some sort of headings as to how to think
12 of those differences to explain why this comparison is
13 not quite relevant, but even so, we'll pursue it.

14 First of all, the mandate between those
15 two organizations is somewhat different and, in fact,
16 GIS has been used in Ontario Hydro for quite some time
17 and for quite a wide variety of different applications.
18 One of those, dealing with land use and environmental
19 planning, is somewhat analogous to much of the usage
20 within MNR and that -- it's that particular item that I
21 personally pursued with Steve Hounsell from Ontario
22 Hydro to find out more about this, what do they do in
23 Ontario Hydro and how do they use this technology?

24 If we come down the list of issues under
25 organizational structure, Ontario Hydro uses GIS in a

1 centralized fashion, as complete contrast to the way
2 MNR both uses and will use this technology.

3 Moreover, within Ontario Hydro, at this
4 point in time the user groups within Hydro are all
5 completely uncoordinated. They do not have to use the
6 same systems, the same software, the same data sets.
7 They take projects on a one-by-one basis, find the
8 right data, solve the problem and go on about their
9 way.

10 That is not quite the same way
11 organizationally how MNR envisages using GIS. We are a
12 decentralized outfit and this technology will probably
13 come into its own in a -- within the district, within
14 the region decentralized but networked environment.
15 Particularly if we come back to the comment Mr. Martel
16 made a moment ago in terms of this standardization
17 hardware/software.

18 In terms of the technology used, the only
19 real comment to make is that Ontario Hydro have at
20 least four different systems at the moment within their
21 organization. MNR at this point in time has three in R
22 and D, but as I've just said, the intent right now is
23 to go out and essentially put in one operation unit,
24 much along the lead -- lines that Mr. Martel alluded
25 to.

1 In terms of applications, the approach
2 is, is really different. Ontario Hydro with its
3 mandate and the way in which it manages -- looks at a
4 project-by-project use of this technology essentially
5 for analysis of a situation at a given point in time.

6 The Ministry of Natural Resources is
7 envisaging using this in a research management mode
8 that is not snapshot, snapshot, snapshot; there is this
9 continuum. There is this need to look at and monitor
10 over time. And so we have the idea of corporate
11 standards, corporate software, corporate data in a
12 continuum. And this comes back to some of the thoughts
13 that were presented yesterday describing INRIS, the
14 need for this standardization over time.

15 At this moment that issue is of no major
16 concern to Ontario Hydro.

17 So if I skip over to the next slide and
18 go specifically to the approaches to data Ontario Hydro
19 had, they tend to run with one-time data acquisition
20 for the project at hand as opposed to MNR's corporate
21 data maintained. At this moment, again, because of the
22 nature of the projects, particularly in the
23 environmental planning section, they can deal with a
24 resolution, a scale of data, that often can be obtained
25 from imagery, satellite or airborne, and that

1 resolution lets them adequately analyse the question to
2 hand.

3 And back to a comment about two or three
4 minutes ago, within MNR that is not the -- not the only
5 level of resolution, on the scale of the data, that MNR
6 has to deal with using this technology. Imagery will
7 not be detailed enough for us in certain applications,
8 although MNR is looking at and seeing where that --
9 those data are of use, and, in fact, have been used in
10 the old growth project, for example.

11 So there is an array of differences
12 between the two institutions which was partly why my
13 relatively brief answer was "no." It's not better, it
14 just depends on the application to which you want to
15 apply it.

16 MR. FREIDIN: Madam Chair that's the
17 evidence in relation to GIS.

18 This might be an appropriate time for a
19 break. I don't believe that we will take much more
20 time to complete our evidence after the break and we
21 can get on with the cross-examination as well.

22 MADAM CHAIR: All right. We will have
23 our morning break and we will be back in twenty
24 minutes.

25 ---Recess at 9:53 a.m.

1 ---On resuming at 10:15 a.m.

2 MR. FREIDIN: Mr. Kennedy, perhaps before
3 we begin this part of the evidence we have some
4 overheads that Mr. Kennedy will use. I think this will
5 be Exhibit 2288. It's a series of overheads, six pages
6 in length entitled: Scientific Research and Technical
7 Development: Training and Professional Development and
8 Reporting Requirements.

9 ---EXHIBIT NO. 2288: Six-page overhead entitled:
10 Scientific Research and Technical
11 Development: Training and
Professional Development and
Reporting Requirements.

12 MR. FREIDIN: Q. And whenever you're
13 ready, Mr. Kennedy.

14 MR. KENNEDY: A. Madam Chair, the
15 purpose of this portion of the evidence is to simply
16 update you on the information that has come forward
17 about training and professional development and
18 reporting requirements since we put our original case
19 in back in the early part of '88.

20 The subject of training and professional
21 development seminars has always had a place both in
22 formal and informal training program and our Panel 8
23 described the various initiatives and types of programs
24 that were in place at that time and the subject matters
25 where we do have training programs in place. We've

1 always recognized that there, there is a need for
2 retraining and for professional development
3 opportunities, and particularly with the introduction
4 of new or revised programs and in conjunction with such
5 things as the introduction of new implementation
6 manuals.

7 In order to ensure that we continue to do
8 that in the future we proposed the term and condition
9 No. 92; and also an appendix 23 in our terms and
10 conditions in this regard where we talk about the need
11 to provide training for some subject matters related to
12 timber management as, first of all, just a general
13 statement on the continued development of training for
14 professional and technical programs related to timber
15 management activities, the timber management planning
16 process in particular which we think will be very
17 important upon the time when we complete our revisions
18 to the timber management planning manual, and with the
19 introduction of implementation manuals, data collection
20 techniques and methodologies, our monitory programs,
21 results of relevant scientific research as we introduce
22 new programs.

23 We have continued to make efforts in this
24 regard since our information as presented in Panel 8,
25 and one of those efforts is the, is the recognition of

1 more attention to be paid to the subject matter, and as
2 part of our reorganization at MNR we've created a new
3 section, under sections entitled: The integrated
4 resource and education training session; and it's
5 established in Sault Ste. Marie now. There's some
6 further description of that section on page 46 of MNR's
7 reply statement of evidence No. 3.

8 We have recognized that training is an
9 integral part of our program development and we believe
10 that we have a good track record and we have trained a
11 large number of people.

12 On page 4 of Exhibit 2288 I've summarized
13 the information that's contained in our witness
14 statement in regard to some of the training initiatives
15 that are ongoing, most of them since we've put our
16 evidence in, back in Panel 8. I don't intend to go
17 through and list each one of these, but I would draw
18 your attention to the timber management planning
19 courses that have been held at the provincial level
20 which involves the training of those involved directly
21 in planning teams and reviewers, and between the period
22 of 1989 to 1991, 530 people have been trained under
23 that program.

24 We've listed several programs that are
25 training and initiatives that have taken place at the

1 regional level, and we've also listed programs where we
2 train people right at the district level in various
3 aspects of new, new information.

4 For instance, the association with the
5 culture heritage guidelines which just came into place
6 in 1991, we trained 35 people in our application in the
7 first year. Those were people who were just beginning
8 to prepare plans in '91.

9 The code of practice for timber
10 management operations in riparian areas which was
11 discussed in earlier evidence, we've now distributed 50
12 videos; 350 booklets; and we've trained 100 operators
13 in that program up until the -- all between the period
14 of '91/'92 since its induction.

15 We continued to have special technical
16 courses for people at the district level and one course
17 is CROPLAN dealing with some wood supply modelling and
18 silvicultural modelling; in that program we've trained
19 105 people.

20 As was mentioned by Mr. Uhlig, on the
21 subject matter of forest ecosystem classification and
22 all their video training of basic soils information,
23 vegetation identifications and landform identification,
24 we've had proximately 500 people train in that program.

25 In our Native awareness program which has

1 been in place for a considerable period of time we've
2 held fifty-two seminars since 1990 and we've trained
3 proximately 900 people in that program. So we do
4 believe we have a good record of training staff in a
5 variety of programs that they need in order to conduct
6 their day-to-day activities and to be involved in
7 timber management planning, and it's our intention to
8 continue with those programs as reflected in the terms
9 and conditions.

10 Q. Mr. Kennedy, just in relation to the
11 code of practice, you mentioned fifty videos; is that
12 the video that was marked as Exhibit 2278 yesterday?

13 A. Yes, it is, Mr. Freidin. Those
14 videos have been distributed to individual
15 organizations, individual companies involved in
16 conducted timber management operations, as well as
17 several educational institutes; and it has been
18 received well by them.

19 Madam Chair, the next subject we would
20 like to speak to is reporting requirements.

21 In our terms and conditions, in term and
22 condition No. 93 we've put forward a specific proposal
23 dealing with reporting. This is for ongoing reporting
24 during the implementation phase of the terms and
25 conditions. We've recognized that the -- many public

1 have come forward, many organizations have come forward
2 and contributed a lot to the hearing process. And
3 we've made the assumption that there is a high
4 likely -- or it is highly likely that they like to have
5 some level of involvement or interest to continue in
6 the future and during our implementation of the terms
7 and conditions, and to that end we come forward with
8 interim reporting requirements. We refer to them as
9 interim reporting requirements, and that they're an
10 addition to the eighth-year formal review document that
11 will be put forward towards the end of the approval
12 period which is described in term and condition No. 96.

13 The reports that we're proposing to do
14 will be provided to the general public and to any
15 individual or interested group that is interested in
16 receiving them as well as for the public as was
17 described in the term and condition. We'll be
18 providing copies directly to the director of MOE's and
19 marketing assessment branch, and it can be there -- it
20 can be seen there at a central location.

21 In terms of what the timing of these
22 reports will be, they are intended to be progress
23 reports on the implementation of terms and conditions,
24 and, as such, are to be producible on a regular basis
25 where applicable for a milestone or significant events

1 along the way as the terms and conditions are
2 implemented.

3 Also we've worked into these recording a
4 specific requirement to comment on the need for
5 amendments to the approval of the undertaking, if it is
6 applicable, in the case of new and emerging research
7 efforts.

8 Turning to page 6 of Exhibit 2288 we'll
9 see the subjects we intend to be reported on. We've
10 listed specific subjects in the term and condition to
11 be: Improvements to the implementation manuals;
12 advances in information collection management;
13 scientific research and technical development;
14 professional and technical training; results of
15 scientific research, pilot projects, and case studies;
16 and new analytical methods or technologies.

17 We think that by having this reporting
18 requirement in place that it will contribute to public
19 education awareness and that the reports will serve as
20 a record of demonstrating term and condition
21 implementation.

22 We also believe that they'll contribute
23 to a broader spreading of the information and knowledge
24 in a timely fashion that we have gained.

25 I might add, Madam Chair, that I think

1 that through our reporting requirements we will be able
2 to report on such initiatives as the habitat supply
3 analysis and modelling as Mr. Watt described, and we
4 would be -- will be publishing reports on that type of
5 program from time to time for individuals and the
6 public record.

7 Q. Mr. Kennedy, I believe you indicated
8 at the outset of the evidence that you have perhaps --
9 you want to take three or four minutes to provide a
10 summary comment in relation to this particular panel.
11 Perhaps you could do that now.

12 A. Yes, Madam Chair, in an effort to be
13 helpful I thought that it may be appropriate to spend
14 a couple of minutes talking about some of the key
15 elements that were discussed in Panel 3 in relationship
16 to timber management planning.

17 On the subject of implementation manuals,
18 the integrated natural resource inventory described by
19 Mr. Osborn -- Dr. Osborn and the related projects of
20 STEMS and TMPIS, forest ecosystem classification and
21 eecological land classification described by Mr. Uhlig,
22 I think the link to timber management on those programs
23 is quite clear and it needs no further description.
24 Those subjects matters will result in changes in the
25 way in which we produce our plans and the way in which

1 we should begin implementing them, for instance, the
2 forest ecosystem classification we'd continue to use in
3 such things as silvicultural ground rule preparation.

4 However, on the subject matters of
5 biological diversity and landscape management, other
6 wildlife effects monitoring, wildlife habitat
7 monitoring described by Dr. Abraham, and habitat supply
8 modelling and geographic information systems, the link
9 to timber management planning may be less clear to you
10 and to other people who are listening.

11 What I do hope is clear is that MNR is
12 taking these initiatives very seriously; a considerable
13 effort is being made by our staff and our resources put
14 towards those projects; we're using well-qualified
15 experts, both those contained within MNR traditionally
16 and we're also involving new staff members seeking new
17 expertise to add to our category of individuals; as
18 well as we're seeking outside involvement, outside
19 expertise in the development of these programs.

20 I would not be surprised, though, if
21 someone reading the transcript or attending the hearing
22 today might wonder, how do these programs relate to
23 timber management and will it mean that the timber
24 management planning processes we put forward will be
25 obsolete or require major changes as these new programs

1 come on stream?

2 And my answer to that question would be
3 "no." We believe that the timber management planning
4 process can accommodate and make good use of the
5 results of those new programs.

6 The timber management planning process we
7 will put forward or the framework for it is structured
8 to be flexible and can accommodate new information and
9 emerging ideas. We've highlighted this point in our
10 reply statement of evidence Panel 3, Exhibit 2272 at
11 page 36. You might be wondering, how will that timber
12 management planning process handle these new
13 developments? Well, it's likely that we'll continue to
14 have new pilot projects and new prototype testing as
15 described by Mr. Watt and the current plans can't
16 accommodate some of that testing.

17 We want to be sure, Mr. Martel, that even
18 when we test new programs and before we adopt them for
19 widespread use that indeed they are operationally
20 possible and feasible; and before we accept one for
21 implementation in terms of the minimum requirement we
22 put it in place for each and every management unit
23 across the province, we want to be sure that it has
24 been quite soundly founded inside and will be, will be
25 implementable and it will achieve the results that it

1 had been intended to.

2 We're expecting coming out of some of
3 these new programs such as those described by Dr.
4 Abraham will be the identification of new values or at
5 least the identification of criteria by which we can
6 conduct further surveys and collect information on
7 these values. That new values information then would
8 be used in preparation of values maps and then,
9 subsequently, an area of certain prescription planning.

10 I would make the observation that I think
11 some of the programs as described will result in the
12 need for new or revised direction within MNR, and to
13 that end I would expect to see that at some point in
14 time we'll be creating new manuals or indeed revising
15 existing manuals, and by that means we'll be able to
16 adjust the manual on which we've conducted timber
17 management operations. To that end the provincial
18 technical committee that I described earlier and the
19 regular scheduled reviews and revision of the manuals
20 will facilitate that task of ensuring our planning
21 process is kept up-to-date.

22 I also believe that many of the
23 scientific research and technical developments that we
24 described here today, and those that I referenced at
25 the beginning of the program that we, MNR reply Panel

1 3, that we wouldn't be speaking to will result in new
2 tools and methodologies this will be able to assist our
3 resource managers.

4 We believe we have put forward a program
5 we can handle with today's existing technology, but we
6 do want to take the benefit of new emerging information
7 in that regard. A good example of that is the
8 geographic information system described by Dr. Osborn.
9 We're able to survive today without that geographical
10 information system, but I can advise you that many of
11 us are looking forward to having that technology to
12 improve our analytical abilities during planning and
13 also to improve in such things as timber management
14 planning production.

15 Particularly with -- a particular example
16 there is, of course, the preparation of the numerous
17 maps and at the draft and final stages of preparing
18 plans, we would hope the geographical information
19 systems can assist us in that regard and lead to more
20 efficient planning production.

21 I think that the geographical information
22 systems may certainly augment and perhaps replace some
23 of the maps that we do now by longhand.

24 Mr. Martel, you asked questions yesterday
25 about our monitoring programs and I believe I phrased

1 the questions, "do you know what you're doing?" or "do
2 we have enough information to know how to go about
3 monitoring?" I think like other jurisdictions we don't
4 have a complete knowledge, but we do have sufficient
5 knowledge to put in place programs that can monitor the
6 kind of operations that we're involved with.

7 We responded to the need to have
8 monitoring programs such as that identified by the
9 United States as well, putting in place monitoring
10 programs to do with our provincial level guidelines.
11 So you've heard about our provincial programs in that
12 regard. Monitoring programs are based on scientific
13 principles with the benefit of outside expertise
14 involved in designing those studies. We put those in
15 place to ensure again that our direction is sound and
16 if our current direction is being tested to ensure it
17 is the best science and the new evolving -- sorry,
18 continuing developments in scientific research and
19 technical development could, in fact, be incorporated
20 into those programs in the future.

21 I also think that some of the new
22 developments that were described, particularly those by
23 Dr. Abraham, will likely result in MNR looking at new
24 resource management programs in the future. It's
25 highly likely that at some point we will have landscape

1 management objectives to deal with, and those could be
2 very easily dealt with through the timber management
3 planning process through the objectives of strategies
4 sections as described by Mr. McNichol during reply
5 Panel 1.

6 Being that many of these items are in a
7 development phase is why we've reported our terms and
8 conditions, those listed primarily at No. 74 and
9 through No. 93 and dealing with continuing developments
10 and scientific research, to use this specific type of
11 wording; you could characterize them as being
12 noncommittal today, they're not in great detail, and
13 the reason for that is that the programs are emerging
14 such as the comments made in other jurisdictions as to
15 the need to learn how to do some of these techniques.

16 Consequently, you'll see terms and
17 conditions wording such as "to accelerate the program",
18 "to continue to develop", "to enhance developments" or
19 "to further develop" and "to improve through
20 development." All of those wording are to reflect that
21 we do have -- it is our intention to continue to look
22 at new emerging science and to incorporate them into
23 our planning process related to timber management
24 activities so that we can ensure we have proper
25 programs in place that are soundly based on science and

1 we're using best information available.

2 We believe it's premature, though, to
3 commit to specific details in many of those programs
4 and we've been unable to do that in the term and
5 condition sense. Again trying to be responsible to the
6 fact that the terms and conditions will be legally
7 binding on us. We don't think it's appropriate to
8 overstate our case. But we did think it was
9 appropriate, though, to offer you guarantees, if you
10 will, through the terms and conditions that we will
11 continue to investigate and develop those programs.

12 To supplement that we can put forward the
13 suggestion of reporting on our progress of
14 implementation that I just went through. The reason
15 for that is to ensure that publics are aware of our
16 efforts that are being made in that regard, to share
17 that information with both the research community as
18 well as other scientists and as well as people such as
19 intervenors that have appeared here before the Board,
20 not to mention our own staff to let them know as to
21 we're moving in the direction of new science. We think
22 by have that information available in public record,
23 having it available in a form that will assist us in
24 summarizing the way in which we've implemented the
25 terms and conditions and contribute to the final report

1 that we prepare as part of the HM review.

2 So, Madam Chair, I hope that gives you
3 some indication of how we've structured our terms and
4 conditions and why we've come forward to you with the
5 evidence in -- some within Panel 2, and particularly in
6 Panel 3 in the continuing developments dealing with
7 some of the new emerging information and to give you
8 some insight as to how we intend to incorporate those
9 into the timber management planning process in the
10 future.

11 MADAM CHAIR: Thank you very much, Mr.
12 Kennedy.

13 MR. FREIDIN: That's the evidence in
14 chief for Panel 3.

15 MADAM CHAIR: Good. We're going to begin
16 Mr. Lindgren's cross-examination. I have a message
17 that there is going to be a fire drill sometime in the
18 next hour and we are to exit by the stairs and go
19 outside when the bell starts ringing or whatever
20 happens.

21 MR. LINDGREN: Thank you, Madam Chair. I
22 hope to be finished before the fire alarm.

23 CROSS-EXAMINATION BY MR. LINDGREN:

24 Q. Dr. Abraham, I'd like to ask you a
25 few questions about biological diversity and landscape

1 management. I'd like to pose a few questions about the
2 documents that were entered during your evidence. I'd
3 like to start with Exhibit 2275 which is the ESSA
4 document entitled "wildlife habitat management
5 strategies."

6 Do you have that document, sir?

7 DR. ABRAHAM: A. Yes, I do.

8 Q. Can I ask you to turn to page 16 of
9 that document, and I'm not going to take much time to
10 go through this line by line, but on page 16 we see a
11 summary of the advantages and disadvantages associated
12 with the featured species management approach, and we
13 see under the heading "advantages" simplicity and
14 focused effort; and then moving down to the
15 "disadvantages with featured species" we see a
16 statement that featured species is a narrow approach,
17 although the habitat needs of many species may be
18 satisfied on a featured species management. The
19 restrictive nature of the approach creates a situation
20 in which many others may be unfortunately unaccounted
21 for.

22 Do you agree with that statement, sir?

23 A. Specifically, you're referring to the
24 latter portion of that statement or the fact that
25 featured species is a narrow approach in scope? I

1 would agree that it's narrow in scope, so are you
2 referring to the latter part.

3 Q. Yes, I am.

4 If we could move to the next
5 disadvantage, we see a statement to the effect that
6 given the holistic approaches to environmental
7 management that are presently at the forefront of
8 public opinion, it is unlikely that much public
9 sympathy would be aroused by a featured species
10 approach.

11 Sir, are you in a position to agree with
12 that statement?

13 A. I don't believe I was finished giving
14 you an answer for the first part. Let me consider both
15 of these statements for a moment.

16 Let me take your second question first,
17 whether much public sympathy would be aroused by a
18 featured species approach given the holistic approaches
19 to environmental management presently at the forefront
20 of public opinion.

21 My evidence indicated that the approach
22 the Ministry is moving toward is a recognition of that
23 holistic approach which is in keeping with public
24 opinion. It also indicated that it was not -- we did
25 not feel it was necessary to abandon a featured species

1 approach because there is a significant public which
2 does have sympathy for that featured species approach.

3 In general the statement is fine, but
4 it's -- it has those kinds of qualifiers.

5 Now, would you like to go back to the
6 previous section? "The restricted nature --" and I'm
7 quoting here from the first disadvantage:

8 The restrictive nature of the approach
9 creates a situation in which many others
10 may unfortunately -- may be unfortunately
11 unaccounted for.

12 And, again, my evidence indicated that --
13 or earlier evidence to the Board in evidence in chief
14 of the case in chief indicated that some analysis or
15 some scoping of that kind of statement had been made.
16 It's a, a true enough statement. It's one of the
17 reasons why we had those series of workshops to
18 facilitate what information needs work, what those
19 unaccounted, unaccounted factors were and how we would
20 go about getting information for them.

21 Q. Okay. Thank you for that
22 clarification.

23 Can I ask you to turn to page 17 where we
24 see a final disadvantage of the featured species
25 management approach, and that is that it's poorly

1 defined, many definitions of the term exist in the
2 scientific literature, this lack of a universally
3 acknowledged definition facilitates misunderstand of
4 the approach and of it's basic precepts.

5 Do you agree with that statement?

6 A. I would agree that whenever you're
7 discussing featured species management approach, one
8 needs to have the definition clearly in mind in
9 discussions. I would acknowledge that there are
10 different approaches.

11 I would like to simply clarify again that
12 the Ministry of Natural Resources' use of featured
13 species management is as a habitat management approach
14 for major, significant species or as defined by
15 threatened, endangered or socially significant as was
16 in my evidence.

17 Q. No. I realize in your evidence
18 you've indicated that in your opinion featured species
19 management is not necessarily incompatible with
20 management for biological diversity, and I think that's
21 consistent with the evidence from FFT and OFAH.
22 Leaving that aside, are there other disadvantages with
23 solely a featured species management approach that
24 aren't identified in this document?

25 A. None that come directly to mind.

1 Q. Can I ask you to turn ahead to page
2 39 of this document. And here in a summary fashion we
3 see a listing of the key advantages and disadvantages
4 associated with a diversity approach as defined by
5 these authors, and under the heading "advantages", the
6 first bullet point reads that a diversity approach may
7 be the least contentious habitat management approach
8 from a public sentiment point of view.

9 I take it that you're in agreement with
10 that statement?

11 A. In the -- again, in saying that, one
12 would have to define -- have clearly in mind what one
13 meant by a diversity approach when discussing it in a
14 similar fashion for featured species. If the public
15 understood that a diversity approach meant that a wide
16 variety and diversity of things were being managed for
17 and that they were happy, that they were being
18 adequately managed for, then I think that's a true
19 enough statement.

20 Q. The second bullet point says: If the
21 basic biophysical assumption underlying a diversity
22 approach to the -- to provision of wildlife habitat are
23 true, then the persistence of all species native to
24 Ontario would be secure.

25 Do you agree with that statement?

1 A. I'm trying to contemplate what all of
2 those assumptions would be. I think my comment would
3 be on that statement it would be that there are a
4 significant number of assumptions underlying the
5 diversity approach. If one has the idea that providing
6 diversity of habitat will secure the status of
7 populations, all native populations I think that's --
8 it's probably untestable and I don't think it's a
9 reasonable assumption because a number of nonhabitat
10 factors that might interfere that would not be under
11 the control of the diversity approach in a local area.

12 Q. Well, we've heard evidence in this
13 hearing to the effect that if you do maintain and
14 perpetuate all ecosystems types, all habitat types in
15 perpetuity you have a much greater assurance, at least
16 the habitat variables are under control and that there
17 will no be limiting populations.

18 Do you agree with that?

19 A. I would agree with -- yes. Basically
20 if you, if you are successful in maintaining the wide
21 array of habitats on the landscape, you're further down
22 the road to ensuring the objectives.

23 Q. And then, finally, the third bullet
24 point indicates that if the basic biophysical
25 assumptions are correct, the approach relieves the

1 resource management agency of huge amounts of species
2 specific habitat carrying capacity research, however, a
3 considerable amount of work may be necessary to show
4 that this assumption is correct.

5 Do you agree with that?

6 A. Again, as a general statement, it's
7 fine. There's a lot of implications in that about when
8 that status will have been achieved. Testing all of
9 the assumptions and satisfying oneself that the
10 assumptions are correct still leaves one with the
11 dilemma of determining -- well, or of changing
12 attitudes towards what species might be significant and
13 what your information needs are.

14 I do acknowledge emphatically that a
15 considerable amount of work would be necessary to show
16 that the assumption is correct and much of that would
17 be species specific habitat related work to test the
18 assumption that the habitat for many species is being
19 maintained.

20 Q. And in fact much of that research is
21 contemplated and recommended in the second ESSA
22 document that was filed; namely, an investigation into
23 the effects of timber management on wildlife and that
24 was marked as Exhibit 2274. Now, I'm not going to take
25 you through that document, sir, but I understand that

1 you were involved in the workshops that led up to that
2 document; is that correct?

3 A. That is correct.

4 Q. And, Mr. Watt and Mr. Uhlig, you were
5 also involved in these workshops?

6 MR. UHLIG: A. That's true.

7 MR. WATT: A. I was involved in two of
8 the three workshops. I believe there were three.

9 MR. LINDGREN: Q. Can I put the
10 following question to all three of you, then - you
11 don't have to answer at the same time. Do each of you
12 generally support the recommendations and work plans
13 set out in the document marked as Exhibit 2274?

14 DR. ABRAHAM: A. The documents as set
15 out that exhibit has a long list of potential things in
16 it, and it's acknowledged as a framework for research
17 in a broad sense and of the information needs
18 necessary.

19 I think it's possible to say in general
20 that the framework is agreeable, but there's much to be
21 considered about the details of each of the work plans
22 from my point of view.

23 MR. WATT: A. I would concur with Dr.
24 Abraham, that would be my impression and opinion as
25 well.

1 MR. UHLIG: A. I have to agree.

2 MR. LINDGREN: Q. Thank you. I wasn't
3 asking for a specific endorsement of any particular
4 program, I wanted an assessment of the overall
5 direction and content.

6 And having said that, did I hear you say
7 yesterday, Dr. Abraham, that the MNR itself has now
8 endorsed the key recommendations and is now embarking
9 on some of the work contemplated by this report?

10 DR. ABRAHAM: A. Yes. In the same
11 context as your, as your previous question.

12 The approval and principle to embark on
13 the program has been obtained. The details as I
14 indicated of the programs, there's much to be worked
15 out and there are issues of funding, having the
16 appropriate staff available, the development of other
17 information, new information that has to be
18 incorporated, and so on, but the approval and principle
19 of the programs is as I indicated yesterday. They will
20 be implemented in some fashion, depending on these
21 other factors.

22 I would anticipate that that would
23 require putting together a group of people in some
24 fashion specifically defining the tasks and the order
25 of priorities of those tasks.

1 Q. Now, the overall content and
2 direction of this particular document is that we should
3 be developing the tools and the correlations that
4 would allow the MNR to practice landscape management,
5 and let me step back and pose the question that Madam
6 Chair posed this morning with respect to habitat supply
7 modelling. I think it would be fair to say if an
8 outsider were to look in at this hearing and he or she
9 wanted to know what the precise position of the MNR is
10 in relation to landscaped level management, I think
11 that person may be somewhat confused and I must confess
12 I'm confused as well.

13 Can I ask you this question, Mr. Watt has
14 said at this point there's no clear consensus within
15 the MNR as to whether or not you're going the diversity
16 route, a featured species route or some other approach.

17 Dr. Abraham, is that your understanding--

18 MR. FREIDIN: I don't think --

19 MR. LINDGREN: --of the MRR's --

20 MR. FREIDIN: -- I don't believe -- I
21 don't think Mr. Watt said that at all.

22 MR. LINDGREN: Well, we'll let the
23 transcript speak for itself.

24 Q. Mr. Watt, do you recall saying words
25 to the effect that there is no consensus within the MNR

1 at the present time as to which direction we're going
2 to go down?

3 MR. WATT: A. I said words to that
4 effect. It probably should have been qualified in
5 terms of -- in, in -- there is general -- there is a
6 consensus about the generalities. The problem is the
7 details, and that's very difficult to escape. And so
8 when I was saying there wasn't a consensus, I was more
9 referring to some of the detailed aspects of it; and
10 I'm afraid being, being sort of scientific by nature, I
11 tend to get bogged down on those.

12 MR. MARTEL: Could I ask you a question.
13 Has anyone defined very precisely anywhere what
14 "landscape management" is? I am not necessarily making
15 that just Ontario, I'm talking about... Because my
16 recollection is we didn't even hear about this term
17 until about two years ago at this hearing. In fact,
18 the first set of terms and conditions of all the
19 parties, I don't think anybody had mentioned landscape
20 management. I might be wrong and it's relatively new,
21 and I don't know if there is.

22 DR. ABRAHAM: Now, to use what -- Dr.
23 Osborn's expression, the quick answer is "no."

24 I think it's -- what we've -- landscape
25 management by design or by result is what we've all,

1 like, all resources of land management agencies have
2 been doing for a long time. The application of the
3 guidelines on forest featured species habit, such as
4 the moose guidelines, you are in, in effect, managing
5 the landscape to look a certain way.

6 Now, there are lots of questions about
7 exactly how it will look after you've done that, what
8 the impacts of that are on that thing or other things,
9 landscape, but nevertheless we've been managing the
10 landscape. I think landscape management in quotes, the
11 thing that you might be asking about, has there -- is
12 there a single definition of landscape management or an
13 approach to do that to secure those biological
14 diversity objectives? And, no, I don't think there is
15 an easy or simple definition of that.

16 MR. MARTEL: Well, let me take it one
17 step further then. I am having difficulty
18 understanding how one, for example, if you're going to
19 have landscape management - and we talked about
20 replicating fire which would replicate nature - and we
21 have terms and conditions which restrict you and you
22 can't, let's say in the first hoop you can only do
23 fifty hectares but the fire is actually a hundred
24 hectares in that that area, how do you tie all that
25 together? How do you, if you have terms and

1 conditions - and there are a whole variety of them at
2 this hearing - and the basic assumption if we're going
3 to move to landscape management, that we have a term
4 and condition that says we can't cut this area because
5 beyond this... But in terms of biodiversity, in fact,
6 and the thing that created that particular piece of
7 forest was much greater than the term and condition
8 allows for, how does that all work together? And maybe
9 I am not that swift, but I can't understand how all
10 these things come together unless you replicate nature
11 almost exactly, and I don't think that's possible.
12 Maybe I'm wrong.

13 DR. ABRAHAM: It's a difficult question
14 to provide a simple answer to. First of all, I don't
15 think that it's appropriate to have terms and
16 conditions that specifically limit certain, you know,
17 activities at such a precise level, and so I, I would
18 not like to have to deal with that kind of specific
19 thing.

20 There's a large degree of education of
21 ourselves and of our clients, the publics about what is
22 achievable and what is desirable, and those things have
23 to be balanced in an open and consultative way. Only
24 well-informed participants from such a discussion could
25 help you pull all that together in a constructive way.

1 What we're doing in the Ministry right
2 now, I think, is absorbing new information; listening
3 to new advice; reconsidering positions that we -- or
4 approaches that we've had; acknowledging that those
5 things are difficult ones, but that they do need to be
6 dealt with in a progressive way. But at the same time
7 we're saying quite strongly that we're not at the point
8 where all those things can necessarily be brought
9 together in a simple way, and even if we did have a
10 general consensus, there's likely always to be
11 significant dissent, dissenting opinion about how we've
12 done that.

13 I'm not sure that helps.

14 MR. MARTEL: I think I know what you're
15 trying to tell me. I just try to think about it in my
16 own mind as to how you put all these pieces together
17 and...

18 DR. ABRAHAM: Well, the road to fitting
19 them together is to aggressively pursue the new
20 information and new abilities to answer questions. As
21 soon as the question is posed, it has all kinds of
22 implications about what the best answer is or is there
23 a better way to provide the answer. And I think it's
24 my opinion that we are aggressive in pursuing through
25 the kinds of experimental things with habitat

1 management that Mr. Watt mentioned, with the kinds of
2 research and information programs that I was
3 describing, that the changes and consideration of the
4 environmental guidelines and so forth that Mr. Kennedy
5 was describing to you. I think that's the best
6 approach that I think we can give you.

7 MR. WATT: If I could add just my own
8 perspective on this. When we're dealing with these
9 kinds of ecosystem level responses like wildlife
10 habitat at a landscape level, I think it's important
11 that we don't handcuff ourselves at individual sites
12 with specific, highly specific terms and conditions
13 such that you would not be allowed, for example, to
14 mimic or to even approach mimicing fire or some other
15 natural disturbance, if that's in fact what you needed
16 at the landscape level.

17 I think that's why we've been asking
18 throughout this process for the flexibility to deal
19 with these things because there is no standard answer
20 that fits across the province, there's no standard
21 answer that sometimes would fit even across one region.
22 The claybelt is very different than Dryden, as you're,
23 I'm sure, well aware, and the same kinds of specific
24 rules in one area will not apply to another. Yet at
25 the same we may be ultimately looking at trying to move

1 in line or move towards what may be relatively similar
2 landscape patterns yet the rules to get there at the
3 site level may be very, very different. So we have to
4 be careful not to handcuff ourselves down at that site
5 level.

6 MR. LINDGREN: Q. Dr. Abraham, if I
7 could, could I refer you to your set of overheads which
8 have been marked as Exhibit 2285. I have a few
9 questions for you arising out of that documentation.

10 Can I ask you to turn first to page 7.
11 And under the second bullet point we see a statement
12 that the wider concern for biodiversity calls for a
13 holistic approach. No argument there from FFT.

14 Can we agree, Dr. Abraham, in order to
15 protect and preserve biological diversity, it would be
16 preferable to undertake holistic or integrated
17 management of forest space resources?

18 DR. ABRAHAM: A. I understand you to
19 say -- to ask me to agree with the statement that
20 integrated holistic resource management of forest space
21 land is necessary. I agree with that.

22 Q. And then moving down to the next
23 bullet point, you've indicated that the MNR has
24 recognized that conservation of biological diversity is
25 an outcome of the way in which ecosystems are managed.

1 Can we agree that conservation of
2 biological diversity is not inevitable, it depends on
3 what the management activity or activities are?

4 A. Well, certainly given that we can't
5 precisely define it or that there might be different
6 definitions, yes, there's no assurances that biological
7 diversity -- that conservation of biological diversity
8 would be protected in or would be achieved regardless
9 of the management approach you use.

10 I wanted to mention that conservation of
11 biological -- conservation, the word, is a not a set
12 of -- not a set of handcuffs around the concept that
13 conservation means incorporating protection, use,
14 development and lots of other things. It's not meant
15 to mean protection or absolute stability of that.

16 Q. I take it, then, that we can agree
17 that there are certain management activities that can
18 be undertaken that are consistent with conserving
19 biological diversity but there are other management
20 activities that might not be consistent with protecting
21 overall biological diversity?

22 A. Well, in the realm of generally
23 hypothesising or theorising about things, I, I'm sure
24 that, that those are possibilities, yes.

25 Q. Well, then, let's make it a little

1 more concrete. Can I ask you to turn to page 16 of
2 your overheads. And the last bullet point on the page
3 says: "Conservation of biological diversity takes
4 precedence if conflict arises in either setting or
5 attaining objectives."

6 And yesterday you were talking about this
7 in the context of featured species management. Can we
8 agree that if featured species management is to be
9 carried out, then it should be carried out in a manner
10 which does not compromise higher order biological
11 diversity objectives?

12 A. Well, again, yes. That's what the
13 statement is meant to indicate, that in order to -- in
14 order to decide, to make a decision about conflict, one
15 has to have information necessary to do that. I want
16 to avoid suggesting that there is a specific, specific
17 or simple way of saying the conflict or some -- your
18 approach here is going to prevent you from reaching the
19 objective in a higher context or any other context.

20 MADAM CHAIR: Excuse me, Mr. Lindgren.

21 I've got to ask at this point, Dr.
22 Abraham, could this statement be taken to mean, for
23 example, that there will never be larger sizes of moose
24 herds in the province of Ontario after a certain point
25 because we're maintaining biodiversity or does it mean

1 there will be no new parks created in Ontario because
2 we're maintaining some at set point in time diversity
3 or there will be no new lake, trout lakes or there will
4 be no different diversity than we have now?

5 DR. ABRAHAM: I think to summarize in a
6 couple of words what you've just asked, you're asking
7 would -- is there a definition of conservation of
8 biological diversity that would restrain or constrain
9 specific attributes of other resources? And I don't
10 think I know the answer to that, but it is certainly a
11 possibility.

12 The other thing inherent in the question,
13 though, is that it's the -- a discussion about what
14 diversity means. By its very nature, the variability
15 and variety that I was referring to could mean that in
16 the certain phase of a population of a system,
17 something might be rare and something else might be
18 common, but the interaction of those, of the rare thing
19 and the common thing, lead over time and through cycles
20 or phases to a changing balance in that.

21 If we were to look at that system at one
22 point in time, we would have an impression of relative
23 rarity and relative abundance which would not be true
24 of an equally important part of that system at another
25 time or in another place, or the relative balance of

1 those two things might be changed.

2 Again, at the genetic level there's lots
3 of variation inherent in the genetic structure of
4 living things. It's that variation upon which natural
5 selection or management skimming or management
6 selection works to create a new level of variation. So
7 I would be very careful about thinking of diversity as
8 something that is static in time or static in a place.
9 The concept, that means much more than that.

10 MR. LINDGREN: Q. Dr. Abraham, if I
11 could, I'd like to return to the last bullet point on
12 page 16. And if I interpret it correctly, you're
13 saying that if, if there is a conflict between featured
14 species management and biological diversity, then
15 biodiversity conservation take primacy or takes
16 process, I guess, to use your words.

17 DR. ABRAHAM: A. Yes, that was the
18 principle that I was trying to get across.

19 Q. Can we move from featured species
20 management to timber management, and can I ask you
21 whether or not you agree that timber management must
22 also be carried out in a manner that does not
23 compromise objectives relating to the conservation of
24 biological diversity within the area of the
25 undertaking?

1 A. Yes. As a government -- as a, as a
2 statement of principle, timber management has a set of
3 activities and a process which would influence -- which
4 would have influence on that. I would -- it would be
5 my opinion that if the whole process jeopardized
6 significant or attainment of conservation of biological
7 diversity in a specific -- in a significant - that's
8 not quite the right word. If we could show or if it
9 were satisfactorily known that that was happening, I
10 would say that timber management would have to
11 accommodate that major principle.

12 Q. So if there was evidence to suggest
13 or document that certain timber management activities
14 and certain ecoregions, or whatever the scale you want
15 to talk about, if it was demonstrated that those
16 activities did have a detrimental effect on the
17 conservation of biological diversity, I take it that
18 this government principle would mean that those
19 activities would have to be modified or avoided?

20 A. Would you repeat that one more time,
21 I'm trying to... Would you just repeat the question?

22 Q. The question is simply this, if it
23 were documented that certain timber management
24 activities in certain areas did have a detrimental
25 effect on the conservation of biological diversity, can

1 we agree that it would be prudent not to undertake
2 those activities or to modify them in some fashion so
3 as to not compromise the conservation of biological
4 diversity?

5 A. Okay, thank you for that
6 clarification.

7 That's a -- one has to consider the scale
8 of which we're talking about. What I just referred to
9 in terms of the scale of the activity or the scale of
10 the variation, the level of variation, the time
11 component, considering the appropriateness of the scale
12 of the question and, here, and what I've indicated as
13 conservation biological diversity as a goal or
14 objective, set of objectives, that's a large scale or
15 rather at a scale of large dimensions like at the whole
16 province level, that gives us the ability to take
17 appropriate actions to maintain that, the diversity at
18 that large dimension, scale.

19 We wouldn't -- it would be -- one would
20 have to take into context the or keep in context the
21 level of reaction and the duration of the effect and
22 the significance of the effect on the whole concept of
23 biological diversity in order to make that judgment.

24 Q. Well, let me particularize my
25 question. If there was evidence to suggest that

1 biological diversity within the area of the
2 undertaking, a provincial scale was being adversely
3 affected in a significant and long-term way by certain
4 timber management activities, I take it in general you
5 would agree that those activities should be modified,
6 changed or avoided?

7 A. That's a tall order, but if we could
8 do all that, yes, I'd agree.

9 Q. Well, you earlier described the
10 principle of the primacy of conservation of biological
11 diversity as a government principle. Can you tell me
12 why that fundamentally important principle is not
13 reflected anywhere in the MNR terms and conditions?

14 A. Could you phrase how that might be
15 done and...

16 Q. Well, I could refer you to the FFT
17 current terms and conditions where that, in fact, has
18 been done where there is an indication that the MNR
19 should be concerned with conserving and protecting
20 biological diversity within the area of the
21 undertaking. We see no comparable provision in the
22 Ministry's terms and conditions and I'm wondering why
23 that is the case?

24 A. Perhaps I could deal specifically
25 with your term and condition and that would give me a

1 frame of reference.

2 Q. Unfortunately, I don't have my Ts and
3 Cs with me, but if you can bear with me one moment.

4 ---Discussion off the record.

5 MS. BLASTORAH: Do you have those, Dr.
6 Abraham?

7 MR. LINDGREN: Q. Dr. Abraham, the
8 relevant FFT term and condition is condition No. 53
9 found at page 25 where we've attempted to define
10 biological diversity and build in a provision which
11 would require the MNR to ensure that biological
12 diversity is protected and maintained.

13 Leaving aside the particular wording of
14 the condition, would it be reasonable for this Board to
15 impose a condition which require the MNR to protect and
16 conserve the biological diversity within the area of
17 the undertaking?

18 DR. ABRAHAM: A. Well, I don't think
19 it's reasonable to leave aside the particular words, if
20 the particular words are not useful to maintaining the
21 biological diversity.

22 Q. Well, sir, I am not asking you to
23 endorse FFT's version, I'm asking you why the MNR has
24 not put forward its own version of a condition that
25 says protect/conserves biological diversity.

1 A. I'm not, I was not involved with the
2 development of the terms and conditions. There are
3 specific terms and conditions about monitoring, the
4 status of resources which are things which are used,
5 would be used to measure whether the objectives are
6 being made -- are being reached. So there are some
7 specific terms and conditions that deal with part of
8 that.

9 There is... The best way, I guess, to
10 try to give you answer to why -- I don't know why it's
11 not in there other than I don't think we know enough
12 about it to make a specific term and condition about
13 it.

14 It's a government principle, it's, as I
15 mentioned in the first overhead in my presentation, the
16 concern is to express in a number of government and
17 public forums, and it's acknowledged in Directions 90s,
18 for example.

19 Q. Well, just how much more information
20 does the MNR require to determine that it's a good idea
21 to protect and maintain biological diversity within the
22 area of the undertaking? How much more study, how much
23 more monitoring is it going to take before you decide
24 that's a worthy objective and worthy of implementation?

25 A. I think you misunderstand. I

1 personally understand it to be a worthy thing to do. I
2 don't know that it's compatible with a term and
3 condition specifically for the area of the undertaking.
4 It's a broader, a broader thing than that.

5 Q. Mr. Kennedy, if I could flip to you
6 for a second. You said earlier this morning that the
7 MNR was unable to commit to a term and condition that
8 required, I believe, habitat supply modelling in every
9 unit and every district. Can you tell me why the MNR
10 may be unable to commit to a term and condition that
11 would require the MNR to protect and conserve
12 biological diversity within the area of the
13 undertaking? What is the specific objection to that
14 kind of condition?

15 MR. KENNEDY A. Thank you for that
16 opportunity, Mr. Lindgren.

17 I think that one of the principles that
18 we've looked at when we're looking at terms and
19 conditions is that we recognize that they are legally
20 binding terms and conditions, and, as such, the
21 Ministry of Natural Resources are going to be held
22 accountable for them.

23 I'm quite sure there will be people
24 looking over our shoulder when it comes to implementing
25 terms and conditions. There will be individuals

1 waiting for us to falter in our step, perhaps to take
2 us to court or charge us under legislation, and we look
3 very long and hard at proposals from other parties. As
4 you know, during our negotiations sessions we've
5 discussed many with many parties a response to their
6 specific terms and conditions. And one of the
7 recurring themes that we use in talking to parties is,
8 how do we go about defining, first of all, what is
9 meant by a party's proposal - such as yours, in this
10 case, of biological diversity? What specifically is
11 meant by the maintenance of it? How does one determine
12 what the status is today in a particular resource? How
13 does one go about monitoring the changes? How does one
14 know when you've achieved that result of you're
15 faltering in that step - as I've referred it to?

16 Those are all very difficult questions
17 which I have not seen come forward in your proposal
18 dealing with that, nor would I expect you to in this
19 particular subject matter, given that it's an emerging
20 subject and, I would say, quite holistic and
21 comprehensive; and to say that we could answer those
22 types of questions implies that we have total
23 knowledge.

24 What we have been able to do as an effort
25 to demonstrate our commitment is, along with the

1 statements made by Mr. Abraham, was to embody in our
2 terms and conditions our best way of addressing that in
3 a practical approach that we could put in place today.
4 To the timber management planning process we use such
5 things as the identification of values in the
6 collection of background information and through the
7 area of concerned planning process, and those aspects
8 are all too familiar to you.

9 In the case of recognizing the emerging
10 science and the emerging concern over biological
11 diversity, which I would suggest to you is effected by
12 many more things than just timber management, we
13 recognize that timber management has a part to play in
14 that and therefore we have created term and condition
15 No. 90 which describes our commitment; and, yes, it is
16 a commitment to move towards landscape management. We
17 mentioned the landscape management and methodologies as
18 a potential means of addressing biological diversity
19 concerns as they relate to timber management planning,
20 but information was conveyed to you in response to
21 Forest For Tomorrow's Interrogatory No. 10 which
22 referred to an interrogatory from panel number -- MNR's
23 reply Panel No. 1, specifically No. 2 part C1, where we
24 provided information to you. But we are committed to
25 moving towards landscape management.

1 Right now we're looking at providing
2 investigations into tools, techniques and methodologies
3 to do that and this Panel is outlining those to you.

4 Q. I think you've hit the nub of the
5 issue, Mr. Kennedy, and that is the MNR has a
6 predisposition to study and monitor and commit to study
7 and monitor. And would it be fair for me to suggest
8 that at the same time you like to talk about biological
9 diversity but you don't want to become accountable for
10 its achievement or nonachievement within the area of
11 the undertaking, and that that is why you are avoiding
12 putting that important principle into the term and
13 condition?

14 A. Mr. Lindgren, there is not too much
15 more I can say, recognizing it goes well beyond timber
16 management. I do not think it would be appropriate for
17 this Board who is dealing with timber management
18 activities in Ontario to suggest that this is the place
19 with which to provide more specific details of how
20 we're going to achieve biological diversity and we'll
21 move towards that concept; but certainly in the terms
22 of timber management, we have put in place how we're
23 going to have a process that will deal with the timber
24 management activity, recognizing values as I say,
25 reporting on those annually and reporting on the five

1 year and, indeed, providing these progress reports, and
2 we would be held accountable in that fashion.

3 Q. I guess we'll agree to disagree on
4 that point, Mr. Kennedy. We'll return to this in final
5 argument, no doubt.

6 Dr. Abraham, a few final questions for
7 you based on some of the monitoring programs now under
8 way. We heard from you in Panel 2 that there have been
9 cutbacks in MGEM, there have been cutbacks in aquatic
10 effects monitoring program, can you tell me if there
11 have been funding cutbacks in the provincial population
12 monitoring program?

13 DR. ABRAHAM: A. If I can have a moment
14 just to find that interrogatory. I think it's question
15 No. 11 from Forests For Tomorrow to Panel 1.

16 MS. BLASTORAH: Do you have a copy of
17 those with you, Dr. Abraham?

18 DR. ABRAHAM: (Nods.)

19 It's Exhibit 2259 which are the
20 interrogatories from Forests For Tomorrow to MNR panel
21 reply Panel 2, question 5 and question 6, and there's a
22 table of a funding summary and the table will indicate
23 that in the 1992/'93 year as compared with the previous
24 year there was a reduction of funding to the moose
25 program, a reduction in funding to the other wildlife

1 and wildlife population monitoring programs combined
2 and reductions to the other monitoring programs as
3 well.

4 MR. LINDGREN: Q. And does that include
5 the forest fragmentation of biological diversity
6 program?

7 DR. ABRAHAM: A. I'm not personally
8 familiar with the costs of those programs, nor their
9 status from one year compared to the previous year.

10 Q. Is there anybody on the panel that
11 can speak to that matter?

12 MR. KENNEDY: A. Mr. Lindgren, I believe
13 that program has been unaffected by our recent
14 reduction in funding and I can undertake to confirm
15 that for you.

16 Q. Thank you, Mr. Kennedy.

17 MS. BLASTORAH: Just for clarification on
18 the record, I believe the interrogatory responses that
19 Dr. Abraham was referring to were a subpart of
20 supplementary response. I'm not sure whether he
21 indicated that.

22 MR. LINDGREN: Q. And finally, Dr.
23 Abraham, do I understand it correctly that the forest
24 fragmentation biodiversity program is specifically
25 geared to old growth and it's not specifically geared

1 to fragmentation or biodiversity concerns associated
2 with earlier age classes or successional stages?

3 DR. ABRAHAM: A. There's two components
4 to that answer and to the program. There are long-term
5 objectives which deal with the technology and the
6 methods of analysing or measuring fragmentation of the
7 forest in, in regarding -- regardless of whether it's
8 old growth or earlier successional stages, so the
9 technologies and the -- meant the system and the
10 database, all of those things would be useful for the
11 larger purpose. The specific vehicle for the
12 short-term objectives, because of it's currency and
13 urgency, is the old growth situation.

14 - Q. Thank you.

15 And on the issue of old growth, Mr.
16 Kennedy, can I ask you a couple of questions arising
17 out of your answer to FFT Interrogatory No. 7 which is
18 contained in Exhibit 2273B at page 24.

19 Now, Mr. Kennedy, I'll try to summarize
20 the answers, if I can, accurately. The first question
21 we put was: When do you think we're going to get some
22 old growth managements prescriptions that are finalized
23 and operationalized?

24 And I think the answer is that you'll get
25 a draft strategy for conservation by the end of 1993,

1 then the Minister has to review and approve.

2 Do I take that to mean that we're not
3 going to see on the ground management prescriptions
4 until some time in 1994?

5 MR. KENNEDY A. The first part of the
6 answer to the part A refers to interim strategies for
7 red and white pine being prepared, and we believe in
8 the fall of '92, subject -- submitted to the Minister
9 and then with theological review process.

10 For other forest types, fall of 1993 --
11 sorry, end of '93 is the target date, and I really am
12 unable to give you a realistic opinion as to what the
13 review and approval and implementation program will be
14 in specific months, but I can assure you this subject
15 matter has attained a high degree of profile and
16 interest within MNR and I would expect to see a speedy
17 review and approval process, and implemented as soon as
18 possible.

19 Q. You can't tell me if it's '93, '94 or
20 '95?

21 A. No. I'm unable to give you a
22 specific date at this time. I do know that our staff
23 involved in the internal support secretariat that I
24 described yesterday is looking at measures by which
25 they could implement that as soon as possible once it's

1 submitted.

2 Q. Now, in questions B and C of the
3 interrogatories we asked whether or not it was a
4 position of the MNR that were the ten sites in site
5 region 4E the only old growth sites in the area of the
6 undertaking?

7 You said "no, they're not."

8 You were also requested, well, if there
9 are areas of old growth outside those ten sites, is
10 harvesting going to be deferred there?

11 And I'm not clear on the answer so I'm
12 going to put the question to you again. For the areas
13 of old growth outside of that ten that have been
14 identified in side region 4E, has the MNR committed to
15 defer harvesting pending the completion of the
16 operational prescriptions?

17 A. No, MNR has not. We've undertaken
18 the report, it's referred as the Iles report. The ten
19 sites were identified, appropriate measures were taken,
20 but on the balance of the area of the undertaking, no,
21 we do not have any particular measures in place at this
22 time.

23 We are awaiting the advice of the policy
24 committee on that, on that matter and I understand that
25 they have had some discussions on the need for further

1 survey work along the lines of the Iles study to do
2 investigations to determine just where these resources
3 are in the province.

4 Q. Is it possible, Mr. Kennedy, that
5 these old growth sites outside of site region 4E may,
6 in fact, be allocated and cut by the time that work is
7 done?

8 A. Yes, that's theoretically possible.

9 Q. Thank you.

10 Mr. Uhlig, a couple of brief questions
11 for you. Yesterday you indicated that were some
12 projects designed to develop the ecological land
13 classification system and they're going to be continued
14 until the end of the sustainable forestry funding.

15 When is the end of the sustainable
16 forestry funding?

17 MR. UHLIG: A. At present we have been
18 informed that the program continues until the end of
19 March 31st, 1996. It was envisaged as a five-year
20 program and we're about a year and a half into it now.

21 Q. And does that termination date apply
22 only to those initiatives or to all the sustainable
23 forestry initiatives, or do you know?

24 A. It applies to the program generally.

25 Q. And secondly, Mr. Uhlig, yesterday

1 you were talking about the uses and misuses of FRI
2 data, and you said or my notes indicate that you said
3 that FRI is often misapplied depending on one's
4 purposes.

5 Can you explain what you mean and provide
6 some examples?

7 A. I'm trying to think of a short one.
8 As you know, FRI contains a stand level canopy
9 description. It does not include any description of
10 underlying soil conditions, of topographic conditions,
11 or understory vegetation conditions, and yet at various
12 times parties have attempted to make interpretations of
13 those characteristics from that descriptive map base.

14 Is that a sufficient answer for your
15 question?

16 Q. That's fine.

17 Dr. Osborn, finally I have a few
18 questions for you.

19 I listened to your evidence, can you
20 confirm for me that INRIS, STEMS, TMPIS are all either
21 in or have just completed the feasibility stage?

22 DR. OSBORN: A. Correct.

23 Q. And although there has been some work
24 done on some of the subcomponents of those programs,
25 the MNR has set no firm target date for any of the

1 programs to be fully operational; is that correct?

2 A. Correct.

3 Q. I'm making wonderful headway.

4 Can you similarly confirm for me that
5 there's no firm date that the FEC system will be
6 upgraded and subsumed within an ecological land
7 classification system?

8 A. Correct.

9 Q. Can you tell me if STEMS is linked to
10 the result of the independent audit that is currently
11 being carried out with respect to backlog in this
12 province?

13 A. Can you tell me what you mean by
14 "linked", please.

15 Q. Well, we're told that the result of
16 this independent audit will be available maybe in the
17 fall. Will those results be incorporated into the
18 STEMS program?

19 A. I'm trying to envisage what you mean
20 by the "results." The procedures that were used in the
21 audit may well become part of the procedures in STEMS.
22 The data that were collected in the audit may well be
23 the same kinds of data that are collected in STEMS.

24 To put the result per se into STEMS, I
25 have some difficulty understanding exactly what you

1 mean.

2 Q. I was more interested in the general
3 relationship between the two initiatives and I think
4 you answered the question.

5 Now, on the issue of FRI you've indicated
6 that you want to enhance the FRI so that it has more
7 reliability at the stand level.

8 Can you confirm for me that the FRI at
9 present is a forest level inventory?

10 A. And if you'd listened or read the
11 transcript in Panel 3, you would have heard at length
12 that that's exactly what I said.

13 Q. Well, Dr. Osborn, I was there and I
14 did listen and I have read the material, so I don't
15 need that kind of comment.

16 Can you confirm for me that it's not
17 really intended at the present time for detailed
18 operational use at the stand level?

19 A. Correct.

20 Q. So if you want to make it more
21 operational at the stand level, if you want to make it
22 more precise in terms of volume estimates, does that
23 mean that the MNR is going to be carrying out
24 operational cruises, a ground cruise and prove the
25 accuracy of the FRI?

1 A. That is a possibility.

2 Q. Is the MNR committed to doing any of
3 that?

4 A. No.

5 Q. When will the MNR know if it's going
6 to do any of that?

7 A. As I explained in the enhancement of
8 the FRI, there will be a determination of what those
9 enhancements will take. What you've described is one
10 of the various options of improving the operational
11 quality of those data.

12 It is a way, not the only way.

13 Q. The other option that has been
14 discussed in this hearing is combining operational
15 cruises for timber values, with cruising for other
16 values in the sense that you could gather both sets of
17 data at the same time to the extent possible.

18 Is there any movement or updating in that
19 area that you can provide to the Board?

20 A. I'm thinking of the word "movement"
21 and "updating." There has been, and I'm not sure for
22 exactly how long, that kind of procedure done in the
23 Algonquin region within MNR in the area of the
24 undertaking whereby the, as you described, the
25 assessment of timber values and the wildlife values,

1 and I don't have the details, were done at the same
2 time.

3 Within INRIS, and I didn't dwell on this
4 in length, one of the integration possibilities is, as
5 is suggested, the collection of a variety of data sets
6 at the same time at the same location. So, yes, that
7 is within the areas of concern, the areas of
8 investigation within INRIS.

9 Q. Okay. Thank you.

10 And finally I want to talk to you about
11 derived FEC. And you've indicated that in order to get
12 very far we need to digitalize the base maps. And
13 you've indicated that won't be completed until the next
14 century, like the year 2003 or -4.

15 Do you recall that evidence?

16 A. Before complete coverage within the
17 area of the undertaking, correct.

18 Q. Now, I've provided to you a copy of
19 an excerpt from the MNR estimates briefing book, 1992
20 and '93. Have you had an opportunity to look at that
21 excerpt?

22 A. Yes.

23 MR. LINDGREN: Madam Chair, I would like
24 to file that as the next exhibit. And I would describe
25 it as page 29 from the estimates briefing book of the

1 MNR, for year 1992/'93.

2 MADAM CHAIR: This will be Exhibit 2289.

3 ---EXHIBIT NO. 2289: Page 29 of the MNR estimates
4 briefing book for the year
1992/'93.

5 MR. LINDGREN: Q. Now, Dr. Osborn, as I
6 read this graph, it seems to indicate that in 1986 we
7 had no base maps digitalized and then in the five-year
8 period, that is until 1991/'92, approximately 30, 32
9 per cent of the base maps have been digitalized.

10 It seems to be an exponential increase in
11 the amount of base maps digitalized, and in light of
12 that trend is it your position that it's going to take
13 at least another fifteen years to complete the
14 remaining two-thirds?

15 A. That is my current understanding of
16 the estimate.

17 Q. And could I ask you to look at the
18 second graph, the pie chart on the bottom of the page.
19 And I realize that you didn't prepare this graph but
20 can you advise what it means by digital map, 32 per
21 cent; to be completed, 41 per cent; conventional map,
22 27 per cent?

23 A. Yes, I can. I'll try to do this
24 briefly.

25 The Ontario base map program started in

1 '83, '84. The original intent of the program was to
2 have this as what was called "hard copy map" or "paper
3 copy map" or what on that pie chart is called
4 "conventional map."

5 In and around '86/'87 there was the start
6 of producing that Ontario base map in digital form. So
7 the pie chart speaks to at this point in time -- or the
8 data of the pie chart, how much OBM maps were in paper
9 copy, i.e. 27 per cent called conventional; how many at
10 this point in time of the total program have been
11 digitized, 32 per cent; and the to be completed story,
12 is the 41 per cent.

13 Now, the pie chart therefore speaks to
14 the entire number of OBM map sheets and I'm hesitating
15 whether the intention was to cover the entire province
16 or not because I'm not certain of the northern limits.

17 One perhaps additional comment with
18 relation to the pie chart. The to be completed 41 per
19 has got to be done in some way, shape or form - which
20 at this day and age will be digital - but in addition,
21 the conventional maps that are hard copy on that
22 diagram also have to be digitized, if the data are all
23 to end up in digital format.

24 MR. LINDGREN: Thank you, Dr. Osborn and
25 thank you, panel.

1 Those are my questions Madam Chair.

2 MADAM CHAIR: Thank you, Mr. Lindgren.

3 Ms. Gillespie?

4 MR. FREIDIN: Madam Chair, I was just
5 wondering whether we could have a short break before...
6 Well, how long is she going to -- how long, Ms.
7 Gillespie? I need a short break anyway.

8 MS. GILLESPIE: Well, I'm going to be
9 very, very brief. I'm in your hands as far as --

10 MADAM CHAIR: How long Ms. Gillespie?

11 MS. GILLESPIE: I think about ten minutes

12 MR. FREIDIN: Well, give me about, just
13 give me a short break (laughter).

14 ---Recess at 11:42 a.m.

15 ---On resuming at 11:50 a.m.

16 MR. FREIDIN: Madam Chair, on behalf of
17 all the smiling faces I saw upstairs, I thank you for
18 the short break.

19 MADAM CHAIR: Ms. Gillespie.

20 MS. GILLESPIE: Thank you, Madam Chair.

21 CROSS-EXAMINATION BY MS. GILLESPIE:

22 Q. Mr. Uhlig, I have one question for
23 you with respect to the ecological land classification
24 program. Can you tell me whether the ecological land
25 classification will be the generator for general

1 standard site types which have been proposed by the
2 MNR?

3 MR. UHLIG: A. There has been some
4 preliminary discussion on what those general site types
5 should comprise. I've -- I think they're still very
6 early in those discussions.

7 Perhaps at some ultimate point when the
8 classifications are complete and in place and you have
9 appropriate coverage, complete coverage for the area of
10 the undertaking at least, they might provide that type
11 of general site type. I think in the shorter term,
12 though, while that work is being done, they are
13 considering an alternative format.

14 Is that sufficient?

15 Q. Maybe Mr. Kennedy can assist.

16 Is there another way that those general
17 standard site types will be developed, Mr. Kennedy?

18 MR. KENNEDY A. Yes, there is. Right
19 now the intention is to use the information contained
20 within the existing silvicultural guides and use the
21 descriptions with them there, or site conditions where
22 these species grow in order to develop the general
23 standard side types.

24 As you know it's intended to establish
25 the site types, the general standard site types in the

1 guide and uses the linkage mechanism to the
2 silvicultural ground rule.

3 Mr. Uhlig is also corect that in our
4 discussions in a small group of individuals within MNR
5 and a few people outside as to what we might move to in
6 the future, the type of information that Mr. Uhlig
7 described for ecological land classification and a more
8 consistent application of forest ecosystem
9 classifications may in future result in a different
10 style of general standard site types. But in the
11 immediate future, I would think the next five to eight
12 years, we'll be using the information contained in the
13 silvicultural guides as they undergo the scientific
14 review to develop this, the general standard site type.

15 Q. Thank you. And, Mr. Kennedy, I
16 believe your annual report on timber management
17 proposal in appendix 18 contains a reference to a
18 report on conditioned surveys.

19 Can you explain what conditioned surveys
20 are and how they will be reported?

21 A. I believe it may be necessary to
22 correct you. In the appendix 18 I do not believe here
23 it makes reference to conditioned surveys; however,
24 appendix 20 does, which is the annual report at the
25 provincial level. Is that what your question is

1 directed to?

2 Q. That is what I'm referring to. Thank
3 you, Mr. Kennedy.

4 A. The conditioned surveys as referred
5 to in appendix 20 were described in earlier evidence.
6 And to give you a very quick synopsis, it's a general
7 term that we use to describe such things as first-year
8 survival surveys, second-year survivals surveys,
9 third-year stocking assessments, fifth-year stocking
10 assessments, and it deals with providing information on
11 the condition of the treated area at a particular point
12 in time.

13 Q. And I take it from your examples that
14 the points in time could be both before and after a
15 free to grow standard is reached?

16 A. Yes, that's possible, although most,
17 most common usage of the term is to apply it to
18 conditioned surveys -- sorry, when using conditioned
19 surveys applies to that information that's collected
20 prior to free to grow, at least in the usage that I
21 understand it.

22 Q. And, Mr. Kennedy, I take it you'll
23 agree with me that the Board has heard evidence that
24 expenditures by government on silvicultural activities
25 amounts to approximately one-third of all government

1 expenditures on forest management activities. Is that
2 approximately correct?

3 A. It may appear rather sheepish, I'm
4 unable to confirm that. I'll take your word for it at
5 this time.

6 Q. It sounds reasonable to you.

7 Are you able to confirm that we've heard
8 amounts of approximately \$90 million annually spent on
9 silviculture? Does that sound like the magnitude we're
10 talking about?

11 A. Yes, I believe those figures were
12 used in Panel 2 to describe the current renewable
13 programs.

14 Q. And I take you'll also agree with me
15 that the public has a legitimate interest in how
16 effectively those dollars have been spent?

17 A. Yes, I would.

18 Q. Will you also agree that in order for
19 the public to be in a position to make that assessment,
20 it requires public reporting of information linking the
21 activities on which the dollars are spent to the
22 results which they achieve and to the objectives that
23 set the activities?

24 A. Yes. I am sure that many publics are
25 looking for that kind of information.

1 Q. Well, and that's the kind of
2 information you need to assess how effectively the
3 money has been spent, isn't it?

4 A. Yes.

5 Q. And will you also agree that it's an
6 important component of good resource management to
7 assess how effectively dollars are being spent?

8 A. Yes, I would.

9 Q. And the same information components
10 are necessary to make that assessment?

11 A. Yes.

12 Q. Now, in appendix 22 to the MNR terms
13 and conditions, you describe the state of the forest
14 report and I believe you explained that that's a
15 five-year report, and at paragraph 1B there's a
16 commitment to include a provincial overview of
17 silvicultural effectiveness.

18 Can you explain what you contemplated by
19 an "overview" in this proposal?

20 A. Yes, if you will just give me a
21 moment, I'd like to refer to a term and condition --
22 I'm sorry, to an interrogatory response.

23 Yes. In response to interrogatories from
24 the Ministry of Environment on this matter, and looking
25 now at question No. 3 and question No. 6 which are

1 related to the subject matter, in there we've described
2 that it is our intention to include in a "save the
3 forest" report, which will be produced every five
4 years, the provincial overview of silvicultural
5 effectiveness. So our intention in there to provide as
6 commentary on the results that we're having on our
7 annual treatments.

8 At this time we have not spelled out in
9 the terms and conditions specifically what surveys we
10 will used to portray that information. It's our intent
11 to use a variety of, of existing information as well as
12 the result that will be coming out of the STEMS
13 project.

14 We believe it, for some pieces of
15 information it will be appropriate to put in place
16 surveys that will be statisticcally valid at the
17 provincial level; and for other information, it may be
18 more feasible or practical to aggregate information
19 that's collected at the individual management unit
20 level.

21 Q. Thank you.

22 I also note from paragraph 1B of appendix
23 22 that the provincial overview is a summary prepared
24 from the preceeding five annual reports on timber
25 management; is that correct?

1 A. Not exactly. The comment in appendix
2 22 1B is to refer to the fact that it will be
3 summarising informations contained in the five reports,
4 and in addition to that we will be including the
5 provincial overview of silvicultural effectiveness.

6 Some of the information can be aggregated
7 from the reports which will contribute to that,
8 specifically the information contained on the areas
9 that have have been -- that have reached free to grow
10 studies which are contained in the individual annual
11 reports at the management unit level, and that the
12 provincial annual report will be aggregated and will
13 contribute to commentary on the provincial overview of
14 silvicultural effectiveness.

15 Q. And so the wording of 1B isn't quite
16 correct when it says that it's a summary of the
17 preceeding five, including a provincial overview.
18 That's an additional report in your interpretation?

19 A. Yes, it is an additional piece of
20 information.

21 Q. And would it be possible for you to
22 include such an overview in the annual reports?

23 A. MNR take the position that currently
24 our terms and conditions do provide information which
25 we regard as contributing to a discussion of

1 silvicultural effectiveness.

2 In particular I draw your attention on to
3 appendix 18, No. 1G where at the annual report of the
4 forest management level, we do report on areas declared
5 free to grow.

6 In a similar fashion at the appendix 20
7 in item D, we report on a summary of that information
8 at the provincial level, the areas declared free to
9 grow in the condition survey results.

10 So in that fashion we are currently
11 providing a level of information on silvicultural
12 effectiveness.

13 Q. And would it be possible for you to
14 add a provincial overview silvicultural effectiveness
15 from that information to the annual reports?

16 A. It has always been MNR's intention to
17 improve our reporting on silvicultural effectiveness
18 and to look at reporting to the public, available
19 information in that regard.

20 I would ask you to turn to term and
21 condition No. 80, MNR's No. 80, which is a term and
22 condition that is worded to have MNR improve its
23 assessment recording reporting silvicultural
24 effectiveness, and specifically item D where we speak
25 to the systemic reporting of results or renewal

1 activities to the general public.

2 MNR has been reluctant to be more
3 specific in the wording of how we will improve our
4 abilities of reporting on silvicultural effectiveness,
5 but I can advise you that it has been our intent to
6 make improvements in both the annual -- to the concept
7 of both the annual report at the management unit level
8 and the annual report at the forest -- sorry, at the
9 provincial level, and we're looking at the results
10 coming out of the STEMS project which is what we're
11 using to meet the attempt in term and condition A to
12 offer us additional information that we could then
13 portray in those two annual reports.

14 Q. Well, Mr. Kennedy, could you tell me
15 that to the extent that the overview is prepared from
16 information already in the annual reports, could such
17 an overview or a statement or a summary be included in
18 the annual reports?

19 DR. OSBORN: A. If I can jump in for a
20 moment while Mr. Kennedy's got the luxury of thinking.

21 One of the real differences in the
22 five-year state of the forest report is the ability to
23 show, and hence the idea of a summary, that over time
24 free to grow given in year one, free to grow given in
25 year two, free to grow given in year three, free to

1 grow given in year four in terms of the annual reports,
2 as those values change over time you're in a better
3 position to assess the effectiveness of, for example, a
4 specific treatment.

5 So as you watch over time, and hence the
6 reason for putting those in the five-year report, you
7 can see more clearly, understandably whether or not
8 those results on an annual basis are changing or how
9 they are changing to assess whether or not that result
10 is demonstrating an improvement or a not
11 ineffectiveness.

12 Q. Do you have something to add to that,
13 Mr. Kennedy?

14 MR. KENNEDY: A. I would point out that
15 very often we hear suggestions that silvicultural
16 effectiveness could be reported annually, the one point
17 that we haven't made is that the major stumbling block
18 there is that it's not possible to report on the
19 effectiveness of the activity that you've conducted in
20 that year that you're reporting on.

21 Although it's true that we are conducting
22 conditioned surveys during a particular year, the areas
23 that are being surveyed are for treatments that have
24 been carried out two and three, four, five, or perhaps
25 more years ago and you are conducting the survey that

1 year, but you're not providing information on the
2 silvicultural effectiveness, the treatments that were
3 conducted that year. And we are concerned about the
4 possibility of publics being misled by that two pieces
5 of information.

6 Q. But that's something that can be
7 dealt with in the annual report if it -- it may not be
8 the same measure of effectiveness that you would do on
9 a five-year basis, but you will have the preceding
10 year's report and you can be reporting on changes and
11 developments to give the public some information more
12 frequently than five years.

13 A. It is certainly within the realm of
14 possibilities to report on the types of conditioned
15 surveys that have been conducted on the management unit
16 during that one-year period.

17 Q. I believe you've referred in your
18 evidence and in one of your earlier answers during the
19 cross-examination to free to grow as being one of the
20 ways in which you deal with the subject of
21 silvicultural effectiveness.

22 Can we just confirm that the free to grow
23 is reported in table 4.7 by working group and as
24 treated or untreated?

25 A. Yes, I can confirm that for you.

1 Q. And there's no breakdown in your
2 areas declared free to grow reporting by site type or
3 by type of treatment?

4 A. That's correct. Those tables do not
5 contain those subcategories --

6 Q. And yet --

7 A. I was just going to indicate to Madam
8 Chair, speaking of the tables that are contained within
9 the Timber Management Planning Act to lay out the
10 reporting requirements.

11 Q. And when you report on areas declared
12 free to grow, that's where you get the information
13 from, table 4.7?

14 A. The tables, that is where we record
15 the information that is collected in the field into the
16 tables that are part of the requirement required today
17 as per the timber management planning manual.

18 Those tables are, in fact, the current
19 format which we would use to meet the intent of
20 appendix 18 in our terms and conditions, and that would
21 be the source of information that we would aggregate
22 for reporting at the provincial level to meet the
23 intent of appendix 20.

24 Q. And prior to your delivery of the
25 STEMS program, that's the basis of what you would call

1 reporting on the subject of silvicultural
2 effectiveness?

3 A. Yes, it would.

4 Q. And I would also like you to confirm
5 that free to grow is a single snapshot of the status of
6 a stand which occurs once in rotation and there may be
7 many years before and after that snapshot, during which
8 free to grow doesn't give you any information about the
9 status of the stand?

10 A. Yes, I'd agree with that. It's a
11 survey, it's conducted using informing that you have
12 gained earlier on the stalking levels in a stand and
13 suggesting it to other criteria such as height
14 requirements in desirable species, and then it's an
15 indication of the stand reaching those conditions and
16 ready for re-entry into the inventory and into the MAD
17 land dates for calculations.

18 DR. OSBORN: I'd like to add something to
19 that.

20 There was an inference that post free to
21 grow, there are an array of times when it is possible
22 to look at and assess what the forest is, and is a
23 potential of a silvicultural effectiveness measure. So
24 as the inventory is done post free to grow, there are
25 an array of descriptors of the forest and as was

1 indicated in STEMS' outline and are just as valid today
2 with or without STEMS, that are measures -- are
3 possible measure of silvicultural effectiveness.
4 Species composition being the most obvious answer.

5 Q. Well, I'm concentrating on free to
6 grow because that's what MNR that has chosen as being
7 the reporting of silvicultural effectiveness to the
8 public. So that's we're asking about, some of the
9 limitations of the ability of free to grow and reports
10 of silvicultural effectiveness.

11 I think we heard yesterday, Dr. Osborn,
12 that you anticipate that STEMS will greatly enhance
13 your ability to report on silvicultural effectiveness
14 but there's a, I think you'll agree, there's a time gap
15 into the next century before STEMS will fully
16 operational. And I believe it's after the year 2005;
17 is that correct?

18 A. That is a possibility, yes.

19 Q. Is there a possibility it will be
20 completed before that time?

21 A. Yes, it is a possibility. We're back
22 to the availability of special data on that particular
23 question.

24 But I still would like to come back to
25 the thought, with or without STEMS at the moment one

1 can't -- with or without STEMS at the moment one can
2 describe what the state of the forest is as potential
3 measures, as measures of silvicultural effectiveness.
4 One intended to get a stand of "these species" "that
5 species." Five, ten, fifteen years down the road, the
6 inventory will indicate the species composition.

7 That sort of data exists as of today.

8 Q. And can you tell me where it's
9 reported to the public?

10 A. It's in the forest resource inventory
11 and that information exists in, oh, there was a, an
12 exhibit number, it escapes me for a moment, of a
13 document that was published by the Ministry back in
14 '86, so this has a description of the inventory.

15 Q. And can you link that information to
16 the treatments which produced the results that are
17 described in the forest resource inventory?

18 A. Not directly at this point in time.
19 I'm merely indicating those sorts of data do exist and
20 if that was a worthwhile measure. And this is the sort
21 of measure that's been already described as "could be
22 considered in STEMS", that is a way of envisaging
23 reporting post free to grow.

24 Q. But you'll agree with me that since
25 you've defined silvicultural effectiveness as the

1 degree of which the result of an activity achieves the
2 desired objective, you can't assess effective from
3 reporting areas declared free to grow, because you
4 can't tell which management activity produced the free
5 to grow result.

6 A. That's the way the tables that were
7 alluded to in the timber management planning at this
8 point in time read, yes. Agreed.

9 Q. I believe, Dr. Osborn, you gave
10 evidence yesterday that there are enhancements being
11 made to the SIS and SAS systems.

12 Can you tell us whether those
13 improvements may assist MNR in reporting on
14 silvicultural effectiveness while we're waiting for
15 STEMS to become fully developed?

16 A. I suppose the quick answer is, is
17 "no, I can't" because at this point in time the exact
18 nature of the enhancements to SIS and SAS aren't in a
19 nice, neat list. So I don't have an array of items of
20 enhancements that says "yes, yes; no, no" in answer to
21 your question.

22 I hear what you ask, I have no shadow of
23 doubt that the sort of thing you're looking for in the
24 treatment designation and the result, that linkage
25 between those two, is an item of importance within the

1 SIS enhancement, and my knowledge of the silvicultural
2 information system tells me that that sort of change
3 modification is something that is not - how can I
4 say? - unduly, unduly burdensome, that's onerous, and
5 I'm concerned now about the technology involved in
6 that, systems technology involved with that.

7 Q. So is that something that MNR is
8 investigating?

9 A. Yes, it is.

10 ---Discussion off the record.

11 MS. GILLESPIE: Okay, thank you, panel;
12 and thank you, Madam Chair, those are all my questions.

13 MADAM CHAIR: Thank you, Ms. Gillespie.

14 Will you be conducting a re-examination,
15 Mr. Freidin?

16 MR. FREIDIN: Yes, I would. And I would
17 ask if I could be given twenty minutes to perhaps
18 shorten the length of that re-examination. I think if
19 I have twenty minutes, we should be able to finish by
20 one o'clock.

21 MADAM CHAIR: All right. Thank you.

22 ---Recess at 12:14 p.m.

23 ---On resuming at 12:43 p.m.

24 MADAM CHAIR: Mr. Freidin.

1 RE-DIRECT EXAMINATION BY MR. FREIDIN:

2 Q. Dr. Abraham, could you take out your
3 overhead No. 7, part of Exhibit 2285, please? In the
4 second bullet on that overhead you refer to MNR seeking
5 development of a government statement regarding
6 biological -- or the conservation of biological
7 diversity. I noted during some of your evidence,
8 particularly during cross-examination, you referred to
9 a government position or there being a government
10 principle in relation to biological diversity.

11 Can you just clarify whether this is a --
12 there is a government statement on biological diversity
13 at the present time or whether it's limited to MNR?

14 DR. ABRAHAM: A. Yes. Perhaps my use of
15 the word "government" was sloppy there.

16 There is no government statement at the
17 existing time. There's no MNR statement at the
18 existing time. There is and have been -- there has
19 been a small task group within MNR to develop, to start
20 working on the statement, and the recognition in this
21 bullet point is that it's a broader than MNR concern
22 and so it would be appropriate to seek a government
23 statement.

24 So my understanding is that MNR is
25 currently seeking the development of that government

1 statement, but it doesn't exist at the present time.

2 Q. Thank you. And just sticking with
3 you, is biological diversity of Ontario populations
4 solely dependent on habitat existing or created within
5 Ontario?

6 A. No. There are many species that are
7 mobile or migratory across jurisdictional boundaries
8 and within the hemisphere, so, no, it's not strictly
9 dependent on habitat in Ontario.

10 Q. Thank you.

11 Mr. Kennedy, I was trying to get through
12 five panels without asking you any questions on
13 re-examination and I apologise. In the discussion
14 about old growth, you were asked whether, by Mr.
15 Lindgren whether old growth outside site region 4E
16 might be harvested.

17 And you said it is theoretically
18 possible.

19 Any specific reason that you attached the
20 qualifier "theoretical"?

21 MR. KENNEDY: A. A number of reasons. I
22 think that it would be unreasonable to suggest that all
23 of the red and white pine in the old growth conditions,
24 the older stand conditions throughout the rest of the
25 province would be harvested over the next two- to

1 three-year period, first of all.

2 One is that the -- I am aware of the fact
3 that there is not a commercial market for red and white
4 pine in many of the management units is another reason.
5 And therefore I think it's just unreasonable to suggest
6 that there would be a proposition that you could
7 harvest all of the material that is in that ages in
8 those species throughout the balance of the
9 undertaking.

10 Q. Will the ultimate definition of what
11 old growth is, be it for white pine, red pine or any
12 other species, affect the amount of old growth which is
13 out there in the forest?

14 A. Well, Mr. Freidin, the trees that are
15 out there today, of course, won't change. The way in
16 which public works through the public advisory committee
17 with the advice of the scientific advisory committee
18 recommend that we have a definition for Ontario could
19 very well affect what size of old growth forest that we
20 would then have in the future, given that their
21 parameters could be very wide-reaching or could be very
22 narrow in focus.

23 Q. And if there was a harvest moratorium
24 in relation to the harvest of any particular old growth
25 which might be defined, let's limit this to, say, red

1 or white pine existing old growth, if there's a harvest
2 moratorium on existing old growth does that mean that
3 it will be preserved and remain in existence?

4 A. My understanding is that the existing
5 moratorium, as you refer to it, is, is pending the
6 completion of the growth -- the old growth -- to
7 committee's work until the point that we do have
8 definitions for each of the material. So it is
9 conceivable in the future that portions of that may be
10 harvested, on the other hand it's conceivable that
11 depending on the definitions, that the areas may remain
12 unharvested. It's premature to say which which it will
13 go.

14 Q. But I'm saying if, in fact, if all of
15 the old growth white pine similar to in site region 4E
16 was designated as a no harvest area and it was never
17 harvested, does that mean that it's going to continue
18 to exist in this present state, as old growth?

19 A. If I understand your question to be
20 be, will old growth forests always be there in a
21 preserved state? Certainly not. The ecological
22 process, of course, would take over and the old growth
23 forests as they're referred to today would deteriorate
24 and would change character and evolve into a different
25 forest condition.

1 Q. Dr. Osborn, there was some discussion
2 about collecting information during operation of
3 cruises for resource programs other than timber.

4 Are you able to advise whether there are
5 any limitations on the ability to collect information
6 useful for other resource programs when you're out
7 doing an operational cruise?

8 DR. OSBORN: A. Yes. There's a series
9 of factors to consider which could be limiting.

10 The first and perhaps the most obvious,
11 in a way, is if you are going to measure the trees,
12 other vegetation, wildlife, maybe the soil, you need
13 either one superexpert and/or a team of people so there
14 are expert considerations of having that team available
15 ready to go all at the same time.

16 There are sampling considerations. Where
17 you go and look to measure for trees is not necessarily
18 the best place to go and look and measure for wildlife
19 habitat, and so you have a sampling layout, a sampling
20 design consideration, and whereas that may work quite
21 well for two or three resources, it may not work very
22 efficiently for more than that.

23 In a similar vein, you have a timing
24 consideration. One typically goes and looks at trees
25 when the leaves are on, it's somewhat easier to

1 identify; that's perhaps is not the best time to go and
2 look for winter habitat for deer or moose, so you have
3 a timing consideration as to whether it's efficient or
4 not to do concommittent data collections at the same
5 time.

6 And a pursuance of that one, if, over
7 time if you need to go back and remeasure, the sampling
8 timing is again of concern. The frequency with which
9 one goes back and measures soil characteristics is a
10 somewhat different time frame from when you go back and
11 measure songbirds' nesting habits.

12 So you've got a variety of issues to
13 consider as to the pros and cons, the efficiencies of
14 multiple resource data collection all at one time
15 versus doing those separate themes separately in their
16 own time.

17 Q. Mr. Kennedy, could you turn to page
18 79 of MNR's terms and conditions, appendix 20?

19 Paragraph 1D which indicates that the
20 annual report on timber management shall include a
21 summary of management activities in areas declared free
22 to grow, and conditioned survey results was the subject
23 matters in discussion with Ms. Gillespie. She asked
24 you what you meant by "conditioned survey results" and
25 you indicated that they described first-year survival,

1 second-year survival, third-year stocking, fifth-year
2 stocking.

3 Is the Board to take it that MNR is
4 committing in that term and condition to conducting
5 each of those types of conditioned surveys on every
6 management unit and summarizing them in this report?

7 MR. KENNEDY: A. No, Mr. Freidin. If I
8 left the Board with that impression, it's an error on
9 my part. I was simply providing an explanation to Ms.
10 Gillespie as to the types of conditioned surveys
11 results, the type of surveys that are conducted from
12 time to time in certain places in the province.

13 We are not suggesting or not committing
14 here in this term and condition to carry out those
15 types of surveys in each and every management unit.

16 Q. And sticking with you, Mr. Kennedy,
17 in relation to term and condition 80, and in particular
18 80(d), which you will find at page No. 26 of the terms
19 and conditions; 80(d) indicates or refers to the
20 systematic reporting of results of renewal activities
21 to the general public, and you indicated as part of
22 your response that MNR was reluctant to be more
23 specific than it has been in relation -- than it has
24 been in that particular wording, and my question for
25 you is, why?

1 A. A number of factors why we've been
2 reluctant to be more specific as to how we report in
3 that fashion.

4 The prime one is that we're awaiting the
5 developments of the STEMS project where we have yet to
6 determine what are the appropriate measures to be
7 routinely reporting, as to what's the most efficient
8 and effective way to gather that information for
9 reporting both the public level and for the information
10 that's needed by our resource managers.

11 Q. Dr. Osborn, do you require digitized
12 OBM's to implement STEMS?

13 DR. OSBORN: A. The recommendation at
14 the moment in the feasibility study is that STEMS
15 include what is referred to as a spatial analysis
16 component, i.e. the ability within STEMS and, in fact,
17 the suggestion that STEMS will be more effective in
18 doing what users want it to do if spatial data are
19 available, are used and GIS technologies are employed
20 as part of STEMS. So given that as a recommendation at
21 the moment in the feasible study, the answer is "yes."

22 Q. Mr. Kennedy, when free to grow
23 results -- or free to grow surveys are done and
24 assessments are made of the results by a working group
25 are there any bench mark standards against which those

1 free to grow assessments are made?

2 MR. KENNEDY: A. Yes, there are. In
3 earlier evidence we've described before the Board, and
4 unfortunately I don't recall the exhibit numbers, the
5 regional free to grow bench mark standards that are
6 available for use in determining if the area being
7 surveyed has reached the free to grow condition.

8 Q. Is your achievement of those
9 objectives in any way a measure of regeneration
10 effectiveness?

11 A. Yes, in our opinion it is a measure
12 of silvicultural effectiveness and regeneration
13 effectiveness and that's why we've shown consistently
14 in each of the reporting requirements the need to
15 report on free to grow information both at the
16 annual -- sorry, at the management unit level on an
17 annual basis, at the provincial level on an annual
18 bases and also the five-year state of the forest
19 report.

20 I might add that we also use that
21 information in updating the FRI at the outset of
22 planning, which is the most important step in bringing
23 information up-to-date, which is adding that free to
24 grow information and accounting for any other changes
25 in the land base at that time.

1 MR. FREIDIN: Madam Chair, that's the end
2 of reply Panel No. 3.

3 MADAM CHAIR: Thank you very much, Mr.
4 Freidin.

5 Thank you very much, gentlemen of the
6 witness panel. Thank you for coming to Sudbury this
7 week and giving us your evidence. Thank you.

8 MR. FREIDIN: Madam Chair, there's a
9 scheduling issue that I think we should address before
10 we convene.

11 MS. BLASTORAH: One small matter, Madam
12 Chair. As you know, we indicated that we wished to
13 call Panel 5 reply evidence before our evidence in
14 relation to reply witness statement, statement no. 4,
15 that was for reasons of witness availability. I'm
16 asking if the Board would agree that we may commence
17 Panel 4 which will be called second in sequence. We're
18 asking for a fixed date or series of dates, I guess,
19 starting on the 11th rather than the 10th of August,
20 and again that is due to witness availability.
21 Unfortunately, Dr. Bellcili is not available prior to
22 the 11th, he's away, and I'm asking then that we
23 commence on the 11th and proceed the 12th and the 13th
24 if necessary.

25 MADAM CHAIR: The Board is to take it

1 then, Ms. Blastorah, that you want the hearing to
2 resume -- the first day of the hearing to be August the
3 11th?

4 MS. BLASTORAH: No, no. I'm just asking
5 for a fixed date for that particular panel. We have
6 arranged to call Panel 5 prior to that and also Dr.
7 Wagner is left from this panel.

8 MADAM CHAIR: Right. Then when the Board
9 return on August the 4th, we will be hearing Dr. Wagner
10 on August the 4th.

11 MS. BLASTORAH: That's correct.

12 MADAM CHAIR: And the 5th and 6th, we
13 will hear Panel 5; and the following week we will hear
14 Panel 4.

15 MS. BLASTORAH: Panel 4 commencing on the
16 11th.

17 MR. MARTEL: That is not Monday, that is
18 a Tuesday.

19 MS. BLASTORAH: That's a Tuesday, Mr.
20 Martel.

21 MR. MARTEL: What will you do on Monday?

22 MS. BLASTORAH: That's why I raised the
23 matter in terms of the fixed date. I don't know at
24 this time, and maybe Mr. Freidin can advise me, how
25 long Panel 4 is expected to go. If it runs over into

1 that week, the problem won't arise. If it does not,
2 that's why I raised the issue with the Board. I'm
3 asking that we start on the Tuesday rather than the
4 Monday.

5 ---Discussion off the record.

6 MS. BLASTORAH: If we finish Panel 4, we
7 could carry on, on the Monday. The only problem is Dr.
8 Bellocili's availability.

9 We're content to proceed with any other
10 outstanding matters on the 10th if necessary.

11 MR. FREIDIN: I don't think it's going to
12 be a problem, Mr. Martel. We're going to finish Panel
13 4 that, on that week of -- Panel 5, I'm sorry, on the
14 week of August the 4th.

15 We only have two days?

16 MR. MARTEL: That's a long weekend, if
17 that finishes on the 4th. And then there's Panel 3; on
18 the Wednesday you have got panel --

19 MR. FREIDIN: Well, then Ms. Blastorah is
20 correct. If necessary we can still run over into the
21 Monday then --

22 MR. MARTEL: That is all I am trying to
23 clarify.

24 MS. BLASTORAH: And perhaps to make sure
25 we're all talking about the same thing, I'll put this

1 in a letter to the Board, just to set it all out.

2 MADAM CHAIR: All right. From the way
3 you have described that, it sounds all right to us, Ms.
4 Blastorah.

5 MS. BLASTORAH: Thank you very much. I'm
6 sorry it's so confusing.

7 MADAM CHAIR: And we will be back here on
8 August the 4th.

9 MR. FREIDIN: I think we should start
10 referring to Panel 4 as the "last panel."

11 ---Whereupon the hearing was adjourned at 1:00 p.m. to
12 be reconvened on Tuesday, August the 4th, 1992.

13
14
15 I hereby certify the foregoing to be
16 a true and accurate C.A.T.
17 (Computer-Assisted Transcription) of the
18 proceedings to the best of my skill and
19 ability.

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Tracey Davis,
Court Reporter.



